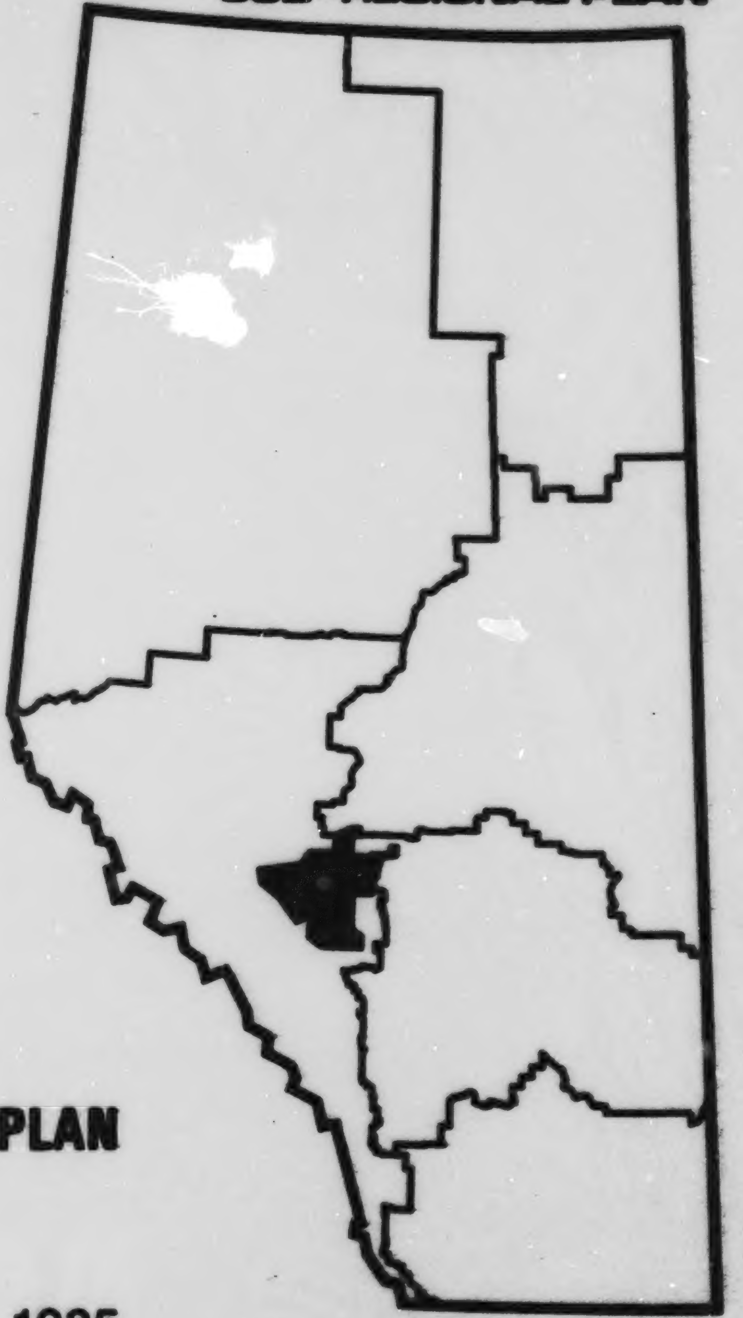
INTEGRATED RESOURCE PLAN:

ROCKY-NORTH SASKATCHEWAN

SUB-REGIONAL PLAN



DRAFT PLAN

MARCH 1985

85-3987/

INTEGRATED RESOURCE PLAN

ROCKY-NORTH SASKATCHEWAN

SUB-REGIONAL PLAN

(Draft Plan)

March 1985
EDMONTON

ENR In-house Report Number: T/1 -- No. 8

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PREFACE

This planning document was prepared by involved government agencies and public consultants in recognition of the need for improved management of Alberta's lands and resources. It applies only to public lands within the planning area, and not to any private or federal lands.

The plan presents the Government of Alberta's resource management policy for the public lands and resources within the area. It is intended to be a guide to resource managers, industry and publics having responsibilities or interests in the area rather than a regulatory mechanism. Resource potentials and opportunities for development are identified with a view to assisting in the economic progress of Alberta. The plan is sufficiently flexible so that all future proposals for land use and development may be considered. No legitimate proposals will be categorically rejected. Should a proposal not be in keeping with the provisions of the plan, alternative means will be explored for accommodating the proposal in a more appropriate location either in this planning area or on other public lands. The provincial government is committed to serving Albertans and the rejection of any proposals will only be done in writing by the Associate Minister or his designate.

A detailed outline for implementation will be provided for this sub-regional plan in order to identify the necessary implementation actions and roles. This implementation outline will also provide for the continuing review of the plan so that it may accommodate changing needs and situations. Wherever possible, the private sector will be provided the opportunity to be actively involved in the operational delivery of the plan.

While the plan identifies resource potentials and opportunities, the realization of these may require the dedication of major amounts of public funds. The plan will be used on the understanding that any actions required for implementation will only be undertaken as budgetary approvals are given in the normal way. The private sector will be given the first opportunity to provide any development required.

This plan has no legal status and is subject to revisions or review at the discretion of the Associate Minister of Public Lands and Wildlife.

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1. INTRODUCTION

A Policy for Resource Management of the Eastern Slopes (Eastern Slopes Policy), approved by Cabinet in July, 1977 and subsequently revised in 1984, identifies integrated resource management planning under a comprehensive interagency approach as the means for effective management of the resources of the Eastern Slopes region of Alberta. To implement this policy, the Resource Planning Branch of the Alberta Department of Energy and Natural Resources has been given the responsibility of co-ordinating the preparation of integrated resource management plans on a priority basis for agencies with resource management concerns for public lands and resources within designated planning areas.

In January, 1978 the Energy and Natural Resources/Recreation and Parks Interdepartmental Assistant Deputy Ministers Committee, acting upon a request from the Alberta Forest Service, identified the Rocky-Clearwater Forest as a priority for integrated resource management planning. In response to a directive from this Committee, the Rocky-Clearwater Management Overview (Overview) was initiated in April, 1978 and completed for approval by the director-level Resource Integration Committee in May, 1980. The Overview provided a framework for integrated resource management planning in the Rocky-Clearwater region and established priorities for the completion of plans within this region. The Rocky-North Saskatchewan Planning Area was identified as the second priority for integrated resource planning within the Clearwater Forest and a subregional plan for the area was initiated by the Energy and Natural Resources/Recreation and Parks Interdepartmental Assistant Deputy Ministers Committee in June, 1980.

Planning efforts to date have culminated in the production of this document which is a draft integrated resource plan for the Rocky-North Saskatchewan Planning Area. The Draft Plan is currently being reviewed by the various participants in the integrated resource management planning system with the intent of incorporating desirable changes in a final plan.

2. THE PLANNING AREA

The Rocky-North Saskatchewan Planning Area, as shown on Figure 1, is located immediately to the north and west of the town of Rocky Mountain House and covers a land area of approximately 7000 km^2. It encompasses portions of the Nordegg, Baptiste and Upper North Saskatchewan river drainages and the Prairie Creek watershed. The boundary of the planning area is, generally speaking, as follows:

North

The north shore of the North Saskatchewan River from a point near Drayton Valley to the Brazeau River - west along the north shore of the Brazeau River to the mouth of the Nordegg River - west along the watershed divide between the Brazeau and Nordegg rivers to the Forestry Trunk Road.

West

The height of land forming the headwaters of the Nordegg River which parallels the Forestry Trunk Road south from Grassy Mountain - southeast across Baldy Mountain and Coliseum Mountain and along the height of land between Deep Creek and Dutch Creek to Ram Lookout.

South

Eeast along the height of land forming the northern limits of the North Ram River watershed to its confluence with the North Saskatchewan River - south along the height of land which forms the headwaters of North Prairie, Lick, Dry and Prairie creeks to Baseline Lookout - east along the height of land between the Tay River and Swan Creek to a point north of Phyllis Lake - south to the northern edge of Section 10, Township 36, Range 7, west of the 5th meridian.

East

Northeast from the above along the R01 Forest Management Unit boundary to approximately Welch Creek - north and east following the legal survey lines to include Town Lake and vicinity but excluding the village of Winfield and the Buck Lake Indian Reserve No. 133C - east

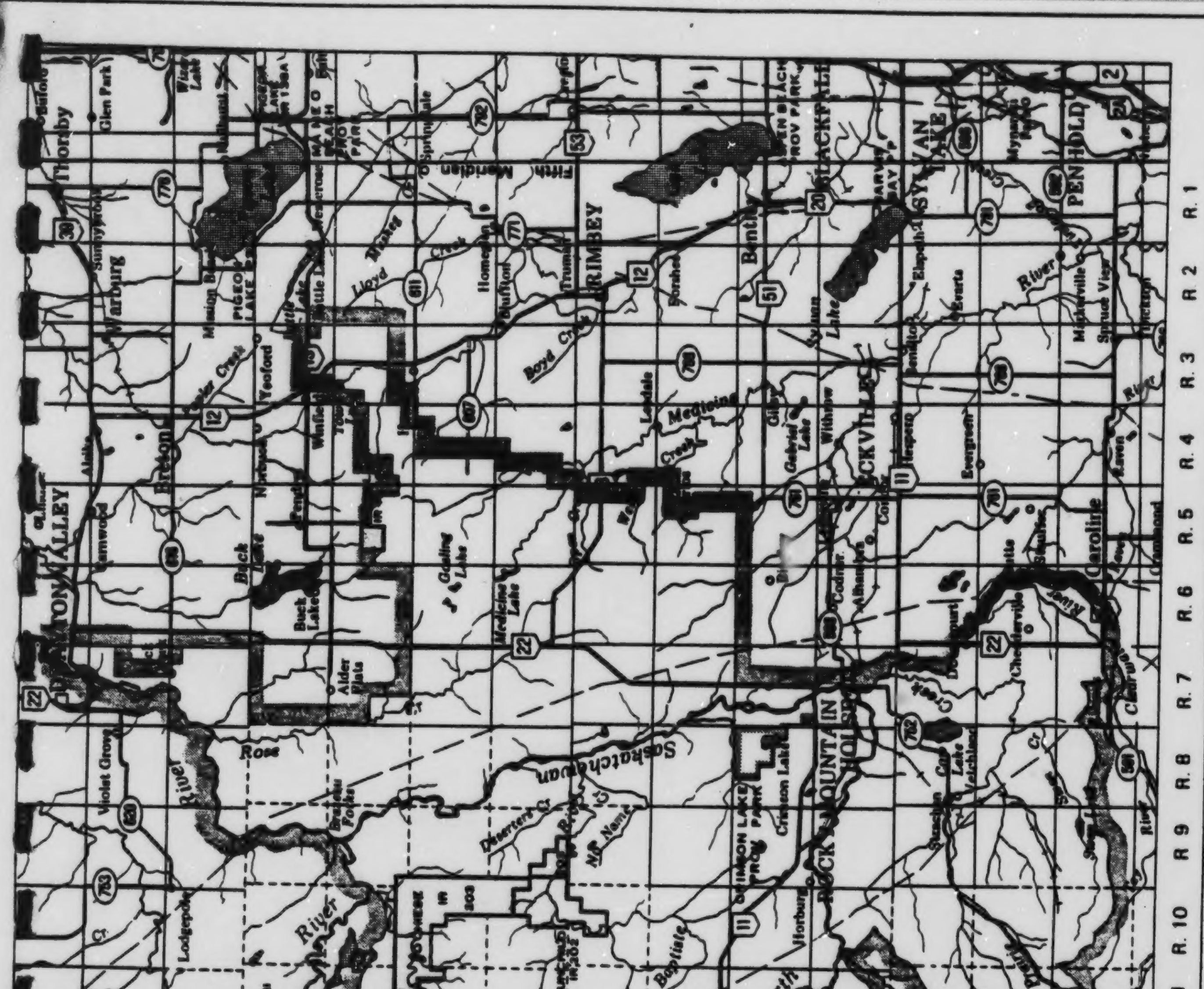

Figure 1. ROCKY-NORTH SASKATCHEWAN PLANNING AREA

from the Buck Lake Reserve along the Rocky-Clearwater Forest boundary to Range 8 west of 5 - north along the Forest boundary to meet the northern study area boundary at a point on the North Saskatchewan River near the town of Drayton Valley.

The Rocky-North Saskatchewan Integrated Resource Plan deals only with Crown lands and resources and no planning was done for privately owned or federally administered lands such as the O'Chiese and Sunchild Indian Reserves or for Crown resources under patent lands. However, the effects of land uses in these areas and in adjacent areas along the periphery of the planning area were considered.

The Rocky-North Saskatchewan Integrated Resource Planning Area is bordered on the north by the Brazeau-Pembina Integrated Resource Planning Area and on the south and west by the Nordegg - Red Deer River Integrated Resource Planning Area. Integrated resource plans have been completed for the Rocky Mountain House Grazing Reserve, which is entirely within the planning area, and for the Medicine Lake Grazing Reserve, which is partially within the planning area. The planning team recognized the grazing reserve plans and took direction from these plans, as appropriate.

3. INTEGRATED RESOURCE PLANNING CONTEXT

3.1 Integrated Resource Management and Planning

The Alberta government is responsible for management of the provincial resource base and works to optimize the use of all natural resources in order to provide maximum benefits for Albertans, now and in the future. The government is committed to an integrated approach to resource management which recognizes that management and use of one resource may affect management and use of another resource. Integrated resource management attempts to reduce or resolve any negative interactions and enhance or promote positive interactions between resource management and use activities. Co-operation, communication, co-ordination and comprehensive consideration of resource values are fundamental aspects of the concept of integrated resource management.

Integrated resource planning is a decision-making process which is an integral component of integrated resource management. In integrated resource planning, the resource planning initiatives of various government agencies are compared and subsequently confirmed or modified to achieve a planning product which is acceptable to all the involved agencies. An integrated resource plan provides direction for field-level resource management decision-making in the form of a set of resource management objectives and a course of action to achieve those objectives. The Rocky-North Saskatchewan Integrated Resource Plan was developed in the context of integrated resource management and planning.

3.2 Planning Process and History

The general purpose of the integrated resource planning process is to develop an integrated resource plan which provides direction for the management of natural resources within the Rocky-North Saskatchewan Planning Area. The process attempts to integrate government resource planning initiatives by clarifying resource management objectives and guidelines and by resolving identified conflicts or concerns. The process also geographically locates resource management objectives by confirming or revising the Eastern Slopes Policy regional zoning boundaries.

The planning process for development of sub-regional integrated resource plans consists of a series of interrelated action steps. The steps are sequential with the exception of the data gathering and analysis step, which can occur throughout the process. The process is also resilient in that the sequence of events may be interrupted to return to a previous step, if required. The planning process consists of the following six steps:

1. Plan initiation - including preparation of a Terms of Reference

2. Data gathering and analysis

3. Policy formulation - including preparation of a Resource Management Policy

4. Development of design components - including preparation of a Draft Plan

5. Plan finalization - including preparation of a Final Plan, and

6. Plan implementation

Preparation and approval of the Terms of Reference is a major element of the plan initiation step of the planning process. A Terms of Reference document for the Rocky-North Saskatchewan Plan was prepared by an interdepartmental planning team and received approval from the Resource Integration Committee in September, 1981. The Terms of Reference presents a description of the planning area, the purpose of the plan, a review of existing resource management policy directions, major resource management concerns and issues, data collection responsibilities, a brief explanation of the decision-making process and a proposed schedule for completion of the plan.

Preparation of the Terms of Reference was followed by the initiation of data collection and analysis, which has been an ongoing activity throughout the development of the plan. The resource management agencies collected and analysed data in the categories of present use, demand, potential and capability for a wide variety of resources. This information was extensively used in the development of resource management objectives and guidelines and in the resolution of identified conflicts.

Policy formulation was the next step in the planning process. A Resource Management Policy for the Rocky-North Saskatchewn Plan was developed by the planning team and approved by the Resource Integration

Committee in August, 1982. The Resource Management Policy contains a description of the planning area, a review of the policy and planning context, a discussion of the policy formulation step, a statement of broad and specific resource management objectives and a description of the revised Eastern Slopes Policy zoning. The Resource Management Policy is an interim document which provides direction for the development of a Draft Plan.

The next step in the planning process is the development of design components of the plan. Design components are resource management guidelines which direct action toward achieving stated resource management objectives. The Draft Plan consists of a compilation and synthesis of the planning products which have been produced to date as well as the design components which were developed at this stage.

3.3 Participants in the Planning Process

A planning team approach is used in the development of integrated resource plans. The planning team consists of representatives from government agencies having major responsibilities or interests in resource management in the Rocky-North Saskatchewan Planning Area plus a team co-ordinator who is responsible for the overall co-ordination of plan development. The Rocky-North Saskatchewan planning team is composed of representatives from the following divisions of the Alberta Department of Energy and Natural Resources:

1. Mineral Resources Division
2. Alberta Forest Service
3. Fish and Wildlife Division
4. Public Lands Division
5. Resource Evaluation and Planning Division

A representative of the Resource Evaluation Branch of the Resource Evaluation and Planning Division completed an ecological land classification study for the Rocky-North Saskatchewan Planning Area and provides ecological input to the planning team, as required.

A wide range of designated consultants provide inputs to the planning team at strategic points in the planning process. Consultants to the team include representatives from Alberta government agencies, the federal government, local authorities and provincial public interest groups.

Representatives of the following Alberta government departments are consultants to the planning team:

1. Agriculture
2. Environment
3. Culture
4. Native Affairs
5. Recreation and Parks
6. Tourism and Small Business
7. Transportation

Parks Canada is the only federal government consultant to the planning team.

Local authorities who provide consultative input are the Red Deer Regional Planning Commission and Improvement District No. 10.

The members of the Legislative Assembly for Rocky Mountain House and Drayton Valley also provide consultative inputs.

Representatives of the following provincial public interest groups are consultants to the planning team:

1. Alberta Fish and Game Association
2. Alberta Forest Products Association
3. Canadian Petroleum Association/Independent Petroleum Association of Canada
4. Alberta Wilderness Association
5. Western Stock Growers Association
6. Unifarm Association

4. RESOURCE MANAGEMENT CONTEXT

Resource management activities in the Rocky-North Saskatchewan Planning Area are guided by numerous government directives including legislation, regulations and policies. These directions for resource management must be considered in the development of the Rocky-North Saskatchewan Integrated Resource Plan.

4.1 Legislation and Associated Directives

A variety of provincial government agencies administer a range of legislation and associated regulations to manage resources throughout Alberta, including those within the Rocky-North Saskatchewan Planning Area. In addition to legislation and regulations, there are also governmental directives, such as orders-in-council and ministerial orders, which affect resource management activities.

Approximately the western one-third of the Rocky-North Saskatchewan Planning Area is within the Rocky Mountain Forest Reserve. The forest reserve was formally established by the Forest Reserves Act (1964) to provide for the conservation of forests and the maintenance of conditions favorable to an optimum water supply.

A large portion of the Rocky-North Saskatchewan Planning Area is in the Green Area which was established by order-in-council in 1948. The Green Area contains lands which are not available for settlement or agricultural development other than grazing. The eastern edge of the planning area is in the White Area. Suitable Crown land within the White Area may be made available for settlement or agricultural development. Major realignment of the Green Area/White Area boundary generally occurs through development of an integrated resource management plan and minor realignment of the boundary occurs on an ongoing basis through negotiation among involved government agencies.

4.2 A Policy for Resource Management of the Eastern Slopes

A Policy for Resource Management of the Eastern Slopes - Revised 1984 (Eastern Slopes Policy) provides direction for integrated resource management and planning for the entire Eastern Slopes Region, including the Rocky-North Saskatchewan Planning Area. The document is split into a policy component and a regional plan.

The policy section identifies the provincial government's intentions for the area including opportunities and priorities for resource management. Watershed management and the provision of benefits from recreation and tourism are high priorities. Other priorities are maintenance of the unique character of the Eastern Slopes, resource management which is consistent with principles of conservation and environmental protection, management of renewable resources in the long term, integrated resource planning and public involvement.

The regional plan for the Eastern Slopes provides more specific resource management direction in the form of regional resource management objectives, land use zoning and resource management guidelines. Objectives are provided for 10 resource sectors and eight regional land use zones are used to designate areas for varying degrees of protection, resource management and development. The zones are: 1) Prime Protection, 2) Critical Wildlife, 3) Special Use, 4) General Recreation, 5) Multiple Use, 6) Agriculture, 7) Industrial, and 8) Facility. The 1977 Eastern Slopes Policy regional zoning for the Rocky-North Saskatchewan Planning Area is presented in Figure 2. The regional plan also contains a Table of Compatible Activities (Table 1) which categorizes representative resource activities according to their compatibility with the intent of each land use zone. The Rocky-North Saskatchewan sub-regional plan provides more specific resource management direction than the Eastern Slopes Policy and the sub-regional zoning in the plan will take precedence over the regional zoning when the plan has been approved by the appropriate Cabinet committee.

The Rocky-North Saskatchewan Plan utilizes the zoning categories and the table of compatible activities from the 1984 Eastern Slopes Policy to provide more detailed resource management direction. The general intents of the zones, as interpreted by the planning team are presented in Table 2. The 1977 Eastern Slopes Policy zoning boundaries were modified during the development of the plan and the revised zoning configuration is presented on a map of the planning area (map pocket). Specific criteria, which were used to designate Critical Wildlife zones, are presented in Appendix 1. Rather than creating an entirely new zoning scheme for the small portion of the planning area which is outside the Eastern Slopes Policy boundary, the Eastern Slopes Zoning categories were used. Zoning does not apply to privately owned land.

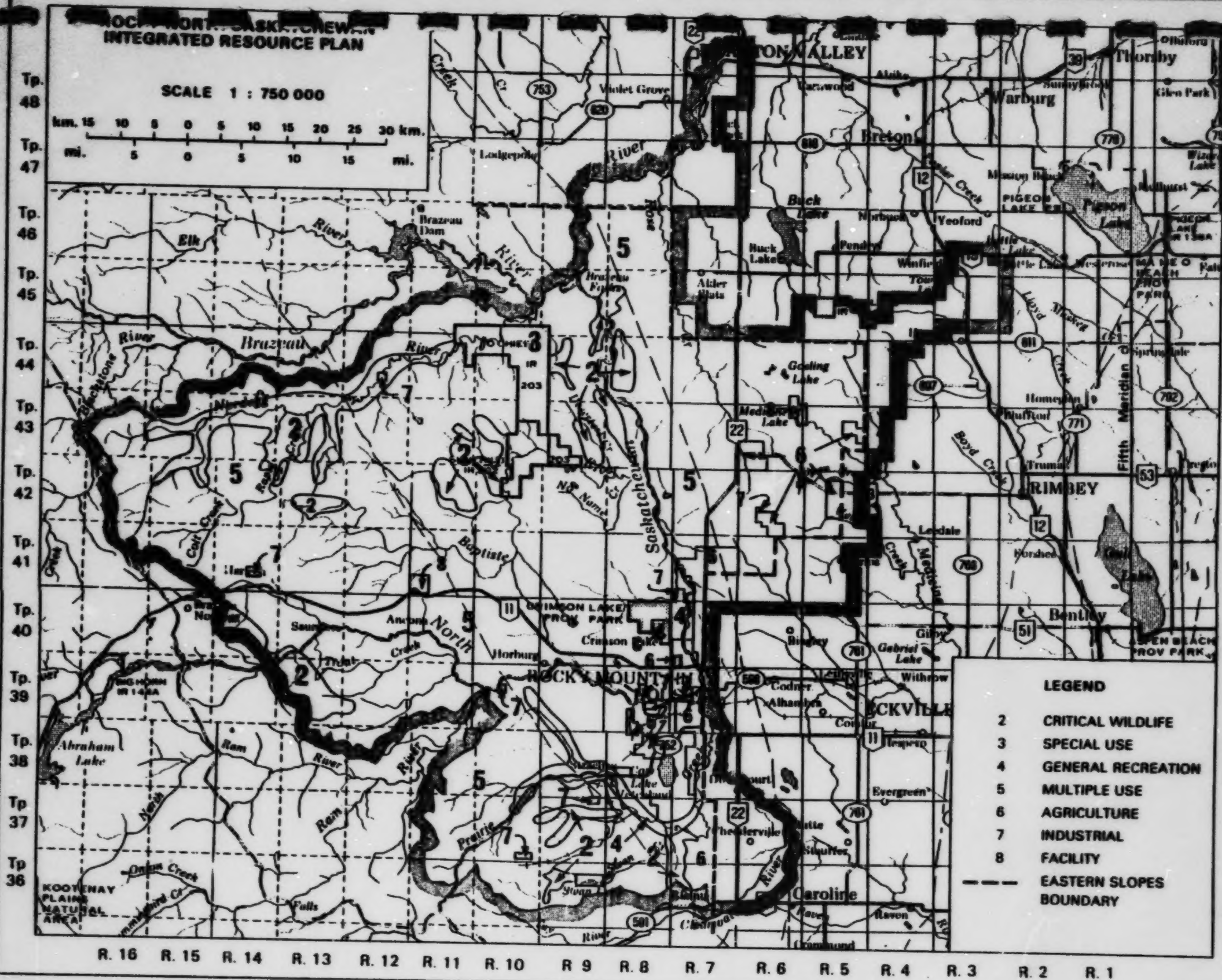

Figure 2 1977 EASTERN SLOPES POLICY ZONING

TABLE 1 COMPATIBLE ACTIVITIES BY LAND USE ZONE

ZONE ACTIVITY	1 PRIME PROTECTION	2 CRITICAL WILDLIFE	3 SPECIAL USE	4 GENERAL RECREATION	5 MULTIPLE USE	6 AGRICULTURE	7 INDUSTRIAL	8 FACILITY
Non-motorized recreation	▓	▓	░	▓	▓	▓	░	▓
Fishing	▓	▓	░	▓	▓	▓	░	▓
Hunting	▓	▓	░	░	▓	▓	░	☐
Scientific study	▓	░	░	░	▓	▓	▓	▓
Trapping	▓	░	░	░	▓	▓	☐	☐
Trails, non-motorized	░	░	░	▓	▓	▓	░	▓
Transportation & utility corridors	░	░	░	░	▓	▓	▓	▓
Primitive camping	░	░	░	▓	▓	▓	☐	☐
Intensive recreation	░	☐	░	▓	▓	░	░	▓
Off-highway vehicle activity	☐	░	░	░	▓	▓	▓	▓
Logging	☐	░	░	░	▓	▓	▓	░
Domestic grazing	☐	░	░	░	▓	▓	☐	░
Petroleum and natural gas exploration & development	☐	░	░	░	▓	▓	▓	░
Coal exploration & development	☐	░	░	░	▓	▓	▓	☐
Mineral exploration & development	☐	░	░	░	▓	▓	▓	☐
Serviced camping	☐	░	░	▓	▓	░	░	▓
Commercial development	☐	☐	░	░	░	░	░	▓
Industrial development	☐	☐	░	☐	▓	░	▓	░
Residential subdivisions	☐	☐	░	░	░	▓	░	▓
Cultivation	☐	☐	░	☐	░	▓	░	░

▓ **Compatible Use** — Uses that are considered to be compatible with the intent of a land use zone under normal guidelines and land use regulations.

░ **Permitted Use** — Uses that may be compatible with the intent of a land use zone under certain circumstances and under special conditions and controls where necessary.

☐ **Not Permitted Use** — Uses that are not compatible with the intent or capabilities of a land use zone.

These activities are only representative of the range of activities that occur in the Eastern Slopes. For these and any other activities, the possibility of whether they should or should not take place in a particular area must always be measured against the fundamental management intentions for that zone. Since economic opportunities are not all known in advance, site-specific developments may be considered in any zone.

Table 2 PLANNING TEAM INTERPRETATION OF THE INTENTS OF THE EASTERN SLOPES POLICY ZONES

#	Zone	INTENT OF THE ZONE
*1	Prime Protection	To preserve environmentally sensitive terrain and valuable esthetic resources.
2	Critical Wildlife	To protect specific fish and wildlife populations by protecting aquatic and terrestrial habitat that is crucial to the maintenance of those populations.
3	Special Use	To recognize historical resources, scientific research areas and lands which have unique management requirements or legislative status or which can not be accommodated elsewhere.
4	General Recreation	To retain a variety of natural environments to serve as a focus for a wide range of outdoor recreational activities.
5	Multiple Use	To provide for the management and development of the full range of available resources, while meeting long term objectives for watershed management and environmental protection.
6	Agriculture	To designate lands which are currently utilized or are considered suitable for cultivation or improved grazing.
7	Industrial	To recognize existing or approved industrial operations.
8	Facility	To recognize existing or approved settlement and commercial development areas.

* Zone was not applied in the Rocky-North Saskatchewan Planning Area.

4.3 A Coal Development Policy for Alberta

The entire Rocky-North Saskatchewan Planning Area is categorized under A Coal Development Policy for Alberta (Coal Policy) (Figure 3). This policy, approved by Cabinet in June, 1976, provides a strategy for the development of coal deposits in Alberta. Under the Coal Policy, exploration and development of coal deposits are permitted only under strict control to ensure environmental protection and satisfactory reclamation of any disturbed land. The western portion of the planning area is zoned as Category 2 where "limited coal exploration is permitted under strict control" and commercial development is generally restricted to underground or in-situ mining. The eastern portion of the planning area is zoned as Category 3 where "coal exploration is permitted under the normal approval procedures" and commercial development is restricted. The eastern fringe of the planning area includes lands which are zoned as Category 4 where exploration and development of coal resources are permitted under normal approval procedures.

A Coal Development Policy for Alberta is currently being revised and the categorization of lands for coal exploration and development may change. An increased emphasis on sub-regional planning is expected. Although the Rocky-North Saskatchewan Plan recognizes this possibility and will take direction from the new policy as appropriate, the 1976 Coal Policy will continue to apply until a revised version is approved.

4.4 Fish and Wildlife Policy for Alberta

The Fish and Wildlife Policy for Alberta was approved by Cabinet and released in October, 1982. This policy provides general direction regarding outdoor recreation, wildlife resources, fisheries resources and regulatory aspects of fish and wildlife use. The Fish and Wildlife Policy calls for preparation of comprehensive ten-year fish and wildlife resource plans. Meeting the objectives which are stated in this plan, will achieve a portion of the overall fish and wildlife projected demand targets, which are identified in the fish and wildlife outdoor recreation plan.

4.5 Rocky-Clearwater Management Overview

The Rocky-Clearwater Management Overview (ENR Report No. 122) was approved by the Resource Integration Committee in May, 1980. The appropriate development strategy or theme for the Rocky-North

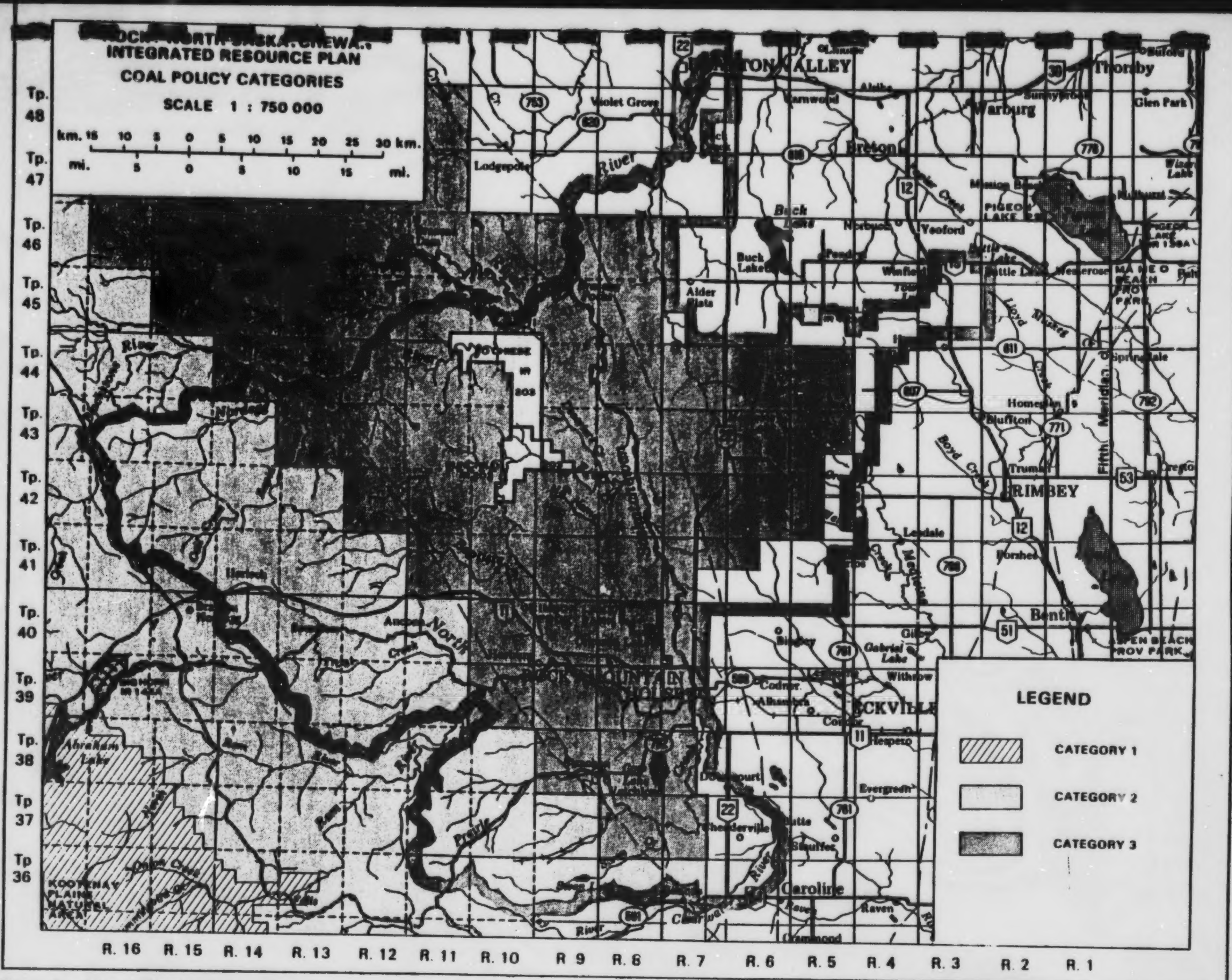

Figure 3 COAL POLICY CATEGORIES

Saskatchewan Plan, as stated in the Overview, is a "multiple use emphasis whereby use of the area for a wide range of activities will be optimized and existing/potential conflicts will be minimized." The Overview recommends a focus on resource utilization for the Rocky-North Saskatchewan Plan and supports the long term resource management priority of renewable resources over non-renewable resources as stated in the Eastern Slopes Policy.

4.6 Brazeau Timber Development Area

The proposed Brazeau Timber Development Area (TDA) overlays approximately 80 per cent of the Rocky-North Saskatchewan Planning Area. The remainder of the Timber Development Area is contained within the Nordegg-Red Deer River Planning Area and the BrazeauPembina Planning Area (Figure 4). The Brazeau Timber Development Area is one of the last large economically accessible areas in Canada, with surplus timber volume, which is available for major development. The proximity of the area to major markets is an attractive feature. The uncommitted timber resources in this area are some of the best in Alberta and proposals for development of this timber are currently being considered by the Alberta government. Public hearings for the Brazeau Timber Development Area were held in August of 1982.

Current forest industry facilities are based on large sawlog trees and are not equipped to handle the large volume of smaller trees in the Brazeau Timber Development Area. A large fibre utilizing facility is required to effectively use the smaller stemmed timber resource. A large land base for production of timber is also required to ensure the economic viability of the potential forest industry in the area.

4.7 Forest Vehicle Routes

A pilot area for designation of "forest vehicle routes" has been proposed within portions of the Rocky-North Saskatchewan, Nordegg-Red Deer River and Brazeau-Pembina planning areas. The concept of forest vehicle routes is a new initiative which involves designation of the appropriate level and diversity of recreational vehicle access in an area. Designation of forest vehicle routes is expected to provide for watershed protection, protection of reclaimed areas and maintenance of fish and wildlife populations and will allow recreational users to select areas with desirable access characteristics.

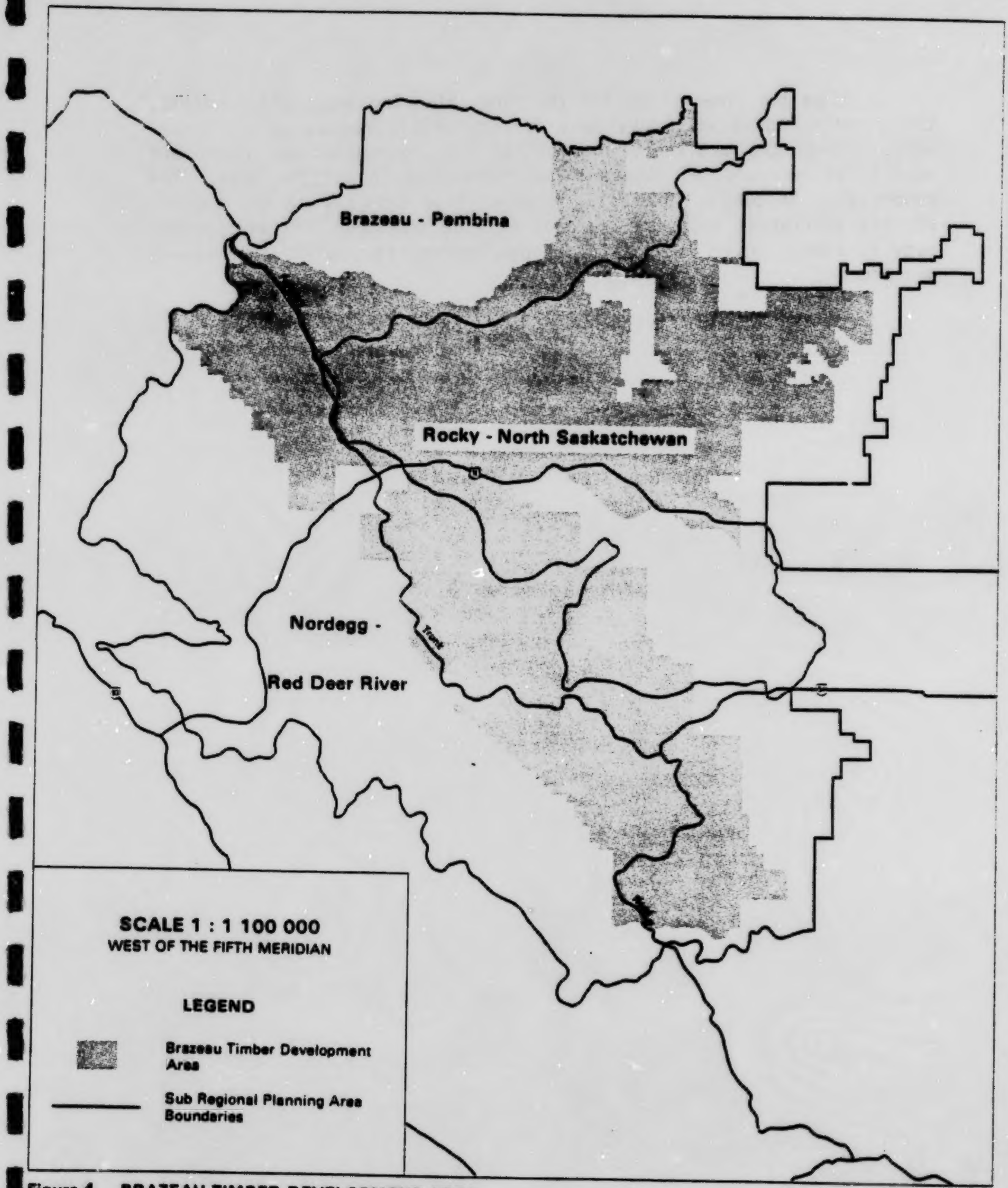
Brazeau - Pembina
Rocky - North Saskatchewan
Nordegg -
Red Deer River
Trunk
SCALE 1 : 1 100 000
WEST OF THE FIFTH MERIDIAN
LEGEND
Brazeau Timber Development Area
Sub Regional Planning Area Boundaries

Figure 4 BRAZEAU TIMBER DEVELOPMENT AREA

Once the final plans for the three planning areas are complete, the planning teams will develop a forest vehicle routes policy framework, assess the available information and recommend the types and amounts of recreational access to be maintained in a pilot area. The cooperation of public interest groups will be critical to the success of this initiative and public groups will be provided with an opportunity to submit their viewpoints through appropriate public involvement procedures.

5. RESOURCE MANAGEMENT CONCERNS AND ISSUES

In their development of the Rocky-North Saskatchewan Draft Plan, the planning team attempted to address the following general resource management concerns and issues which were identified in the Terms of Reference:

1. Maintenance of a land base for timber production,
2. Expansion of the land base available for agricultural production,
3. Protection of water and watershed resources,
4. Various aspects of recreational use of the planning area,
5. Protection of fish and wildlife populations and habitat,
6. Use of fish and wildlife resources,
7. Maintenance of opportunities for petroleum and natural gas exploration and development,
8. Protection of historical and ecological resources,
9. Access development,
10. Demand for more domestic grazing,
11. Timing of resource utilization,
12. Administrative items including realignment of the Green Area/White Area boundary and
13. Aspects of implementation of the Eastern Slopes Policy.

The planning team used an integrated resource planning approach to address and resolve these as well as additional resource management concerns and issues which were identified during the planning process.

6. RESOURCE MANAGEMENT STRATEGY FOR THE ROCKY-NORTH SASKATCHEWAN PLANNING AREA

The resource management strategy for the Rocky-North Saskatchewan Planning Area consists of a statement of primary intent for resource management within the planning area plus a set of broad resource management objectives and guidelines for the planning area. A statement of primary intent indicates the resource management emphasis for an area and involves the selection of one or several objectives from the complete set of resource management objectives which has been identified for the area. Development of the primary intent statement is based on an assessment of the significance of particular resource management objectives within the area in question. A resource management objective can be defined as a statement of a desirable condition or state for a resource or resource use which can be achieved through management action. A resource management guideline is a statement of direction which guides resource use and management action toward achievement of resource management objectives.

The primary intent for resource management within the Rocky-North Saskatchewan Planning Area is:

> To allow for utilization of the full range of available resources while recognizing watershed and other environmental considerations.

The second component of the resource management strategy for the Rocky-North Saskatchewan Planning Area is the following set of resource management objectives and guidelines, which apply to the entire planning area. No priority is intended or implied by the sequence of the objectives and guidelines.

6.1 Water and Watershed Resources

Discussion

The Rocky-North Saskatchewan Planning Area is largely within the North Saskatchewan River basin and contributes approximately 10 per cent of the water yield of the basin in Alberta. The major drainages within the planning area include Prairie Creek, Nordegg River and Baptiste River and a portion of the Clearwater River. A small portion of the Medicine River drainage, on the eastern edge of the planning area, falls within the Red Deer River basin.

Overall, the planning area is characterized by moderate water production and water quality. The planning area has had a long history of varied land use activities, including intensive oil and gas development, timber harvesting and domestic grazing/agriculture on the eastern edge. Erosion and water quality problems have been identified within the planning area. An increased level of land use activity is expected in the future and watershed management concerns are high. Onsite and downstream demands for maintenance of water quality and quantity are also high.

Broad Management Objectives

1. To maintain and/or improve the quality, quantity and flow regime of water resources. Major components of this objective are:

    - to improve water quality, quantity and timing in areas where these water parameters have been negatively affected by land use activities;

    - to preserve the inherent productivity of the land through land management practices which provide maximum protection of the soil;

    - to maintain background streamflow and suspended sediment levels;

    - to maintain the integrity of natural stream channels;

    - to maintain adequate water volumes in major rivers to meet the needs of downstream users.

2. To provide for the present and future use of water resources by on-stream and downstream users including hydroelectric power developments, domestic users, industrial users, recreation users and fish and wildlife populations.

Broad Management Guidelines

1. Watershed monitoring will occur within the planning area in order to gather baseline data on water quality, quantity and

regime for use in developing standards and detecting changes in water parameters. Background streamflow and suspended sediment levels will be established for streams in representative basins within the planning area.

2. Land use activities which cause water quality, quantity or timing to vary will be minimized by applying management techniques that will limit such variances. Erosion, which is associated with surface disturbance and vegetation removal, will be minimized, particularly in close proximity to water courses. Seasonal restrictions on land use activities will be considered in poorly drained and highly erodible areas.

3. Downstream flooding will be minimized by management of land use activities and by regulation of the release of water by hydro-electric developments.

4. Greater co-ordination and management of linear developments is required in order to reduce problems with erosion and water quality.

5. More intensive land use management is required within heavily used portions of this planning area (i.e. Prairie Creek drainage and the lower North Saskatchewan River corridor). A review of current watershed problems and existing land use activities is being undertaken.

6. The level of vegetation manipulation, which would provide an acceptable balance between increasing water yield and maintaining water quality, will be determined through monitoring and watershed modelling.

6.2 Mineral Resources

Discussion

The Rocky-North Saskatchewan Planning Area lies mainly in the interior plains. The foothills extend into the southwest portion of the area and the Rocky Mountains can be found along the extreme southwest boundary. The varied strata and structural geology contain large reserves of coal, petroleum and natural gas.

Petroleum and Natural Gas - Nine designated petroleum and natural gas fields fall inside the planning area and 14 others extend partially into the area. The most productive petroleum fields in the planning area are Ferrier, Pembina and Willisden Green. The largest gas producers are the Ferrier, Ricinus West and Strachan fields. In 1982, approximate production for the Rocky-North Saskatchewan Planning Area was 1.4 million m^3 of petroleum and 3.5 billion m^3 of natural gas. At the end of 1982, there were reserves of approximately 38 million m^3 of petroleum and 83 billion m^3 of natural gas. The large volume of production and reserves is reflected in the extensive infrastructure which has been developed by the oil and gas industry and the high intensity of land use. Petroleum and natural gas dispositions cover 85 per cent of the planning area and nearly 50 per cent of the area is underlain by designated petroleum and natural gas fields. There are 14 gas processing plants, over 1000 producing or capped wells and 800 km of major oil and gas pipelines within the planning area.

Sulphur is associated with natural gas in the Brazeau River, Caroline, Ricinus West and Strachan gas fields. Substantial sulphur reserves occur in the planning area. As well, three gas processing plants within the planning area produce elemental sulphur for sale.

Coal - The Nordegg and Ram River coal fields, which have large reserves of surface and underground minable coal, extend partly into the western portion of the planning area. The parts of these two fields which are within the planning area plus the small Alexo and Shunda Creek deposits are estimated to contain 60 million tonnes of recoverable, mainly metallurgical coal. No coal is currently being produced from any deposit in the Rocky-North Saskatchewan Planning Area, although approximately one million tonnes was removed from nine different mines prior to 1950. The potential mining areas are in the mountains and foothills where the lands are within Category 2 of the Coal Policy. Coal development will not likely proceed in these areas for many years.

Broad Management Objectives

1. To provide opportunities for industry to define the extent of and develop or produce mineral resources where reserves have been proven.

2. To provide opportunities for mineral exploration in previously unexplored areas and formations.

Broad Management Guidelines

1. Reclamation of land use disturbances associated with mineral resources exploration and development will occur expeditiously to reduce erosion and sedimentation.

2. Large scale, long term surface mining or processing operations will not be permitted in Critical Wildlife or General Recreation Zones.

6.3 Timber Resources

Discussion

The timber resource in the Rocky-North Saskatchewan Planning Area is strategically important in helping to achieve the provincial goal of industrial and associated economic diversification for the following reasons. A high percentage of the planning area is productive forest land and transportation facilities in the area are largely developed. The area is also close to a reliable work force.

The Rocky-North Saskatchewan Planning Area includes all of the R1, R2, R5 and R7 Forest Management Units (FMUs). At present there are 12 renewable coniferous quotas in the planning area. There are also four Miscellaneous Timber Use areas which were established to meet the considerable local demand for timber. These commitments represent approximately 13 per cent of the total annual allowable cut (AAC).

The age class distribution of the timber in the planning area is predominantly mature to overmature although the eastern portion (RI) contains considerable immature volume. In order to fully utilize the timber resource, a major forest industry development is required to use the relatively small stemmed timber that is available as surplus AAC. Should the Brazeau Timber Development Area be allocated, the available AAC would be fully committed. Although there are currently no long term deciduous timber commitments within the planning area, the deciduous AAC within the O'Chiese block of the Brazeau TDA would be fully committed, if allocated.

Broad Management Objectives

1. To meet existing timber commitments and provide a forest land base which will sustain a major forest industrial base for the region over the long term.

2. To provide maximum utilization of the potential sustainable annual allowable cut of both coniferous and deciduous wood fibre.

3. To maintain a forest environment of high quality.

4. To dispose of coniferous and deciduous wood fibre resources in the White Area as demand dictates.

5. To provide an optimal vegetation mosaic by managing the occurrence of natural or prescribed fires.

6. To protect forested areas from damage and destruction by insects and diseases. Prompt implementation of approved salvage and sanitation logging is a component of this objective.

7. To maintain a vegetation mosaic which is optimal for adopted resource management objectives.

8. To continue reclamation of industrial disturbances where industrial dispositions have expired.

Broad Management Guidelines

1. Existing access will be utilized by the forest industry wherever possible.

2. Continued and increased productivity of lands which are dedicated to sustained yield timber production will be ensured through use of intensive forest management techniques.

3. The land base which is to be used for sustained yield timber production will consist of land within the Green Area which is in Eastern Slopes Policy "Critical Wildlife", "General Recreation" and "Multiple Use" zones, with the exception of intensively developed recreation sites.

4. Reclamation of land use disturbances associated with timber extraction will occur expeditiously to reduce erosion and sedimentation.

5. All cutover areas will be reforested in accordance with established reforestation regulations and policy except where otherwise noted in this plan (i.e. liquidation harvesting in the White Area).

6. Timber harvesting plans will consider areas which have been identified as having high value for other resources.

6.4 Wildlife Resources

Discussion

The Rocky-North Saskatchewan Planning Area contains a wide diversity of wildlife species and habitat types. Moose, white-tailed and mule deer, elk, black and grizzly bear, bighorn sheep and cougar are found within the planning area. A small population of Rocky Mountain goats has been introduced to the Brazeau Range on the western edge of the planning area. The area supports a full range of furbearers including beaver, coyote, marten, lynx and mink. A large number of bird species is present and upland birds include ruffed, spruce and sharp-tailed grouse.

The diversity of wildlife is supported by a corresponding diversity of habitat. Forest cover varies from pure aspen to mixed stands of aspen, spruce and pine to pure stands of conifer. Muskeg and riparian areas are common and open grassy hillsides are found along the Nordegg and North Saskatchewan Rivers. Alpine grasslands are located on the mountains in the western portion of the planning area.

Trapping and hunting are the major consumptive uses of wildlife in the planning area. Hunting by Treaty Indians in the area is a significant activity. Non-consumptive use of wildlife, such as viewing and photography, is mainly incidental to camping and hiking. The rapid increase in available access has been a major contributing factor to the decline of wildlife populations to below desired levels in portions of the planning area.

Broad Management Objectives

1. To maintain and/or increase natural wildlife populations. This would include maintaining or increasing populations of ungulates, furbearers, birds and rare wildlife species. More specific components of this objective are:

   - to increase elk, moose and deer populations.

   - to maintain populations of wolf, bear and semi-aquatic furbearers at acceptable levels.

   - to maintain, increase or introduce scarce or absent species, such as fisher and river otter when stocks become available.

2. To maintain and/or increase the quality and quantity of suitable aquatic and terrestrial habitat required to support wildlife populations at optimal densities. Components of this objective include:

   - to protect habitat areas and migratory routes which are critical for the survival of specific wildlife populations. Specific habitat areas to be protected include all natural mineral licks, key winter ranges and sites required by rare wildlife species;

   - to enhance or create wildlife habitat in appropriate locations;

   - to maintain or increase the total annual production of forbs and deciduous species for the production of wildlife;

   - to maintain an adequate mosaic of habitat types to ensure the survival of the entire range of wildlife species which are found in the planning area.

3. To maintain and/or increase opportunities for recreational, domestic and commercial use of wildlife resources. Components of this objective are:

   - to maintain or increase the level of hunting;

   - to maintain the existing level of commercial trapping;

   - to increase opportunities for non-consumptive use of wildlife.

Broad Management Guidelines

1. Disturbance of wildlife populations during sensitive time periods will be minimized.

2. Hunting and trapping regulations will be regularly reviewed in relation to hunter use, harvest levels and the condition of game populations, to ensure the long-term survival of naturally reproducing game populations.

3. Fish and Wildlife Division will continue to review and provide input to government referrals on land use activities which have potential for impact on wildlife resources. Emphasis will be

placed on avoiding unnecessary negative impacts on wildlife and on working cooperatively with resource users to take advantage of opportunities for wildlife habitat enhancement.

4. Harassment and habitat destruction around colonial nesting sites, aeries, den sites and mineral licks will be minimized.

5. Disturbance of wildlife will be reduced by managing access (e.g., physical control, forest vehicle routes) and by controlling hunting activities.

6.5 Fisheries Resources

Discussion

The numerous streams, rivers and lakes within the Rocky-North Saskatchewan Planning Area support a diversity of fish species. The streams in the western portion of the area contain mountain whitefish, bull trout, brook trout and rainbow trout. Bull trout is the only indigenous trout species in this area and is prevalent in the upper reaches of most streams. Mountain whitefish use the larger rivers in the area as migration corridors. Most of the streams in the eastern portion of the planning area are warm and slow-moving. Northern pike are the primary resident sportfish in these streams.

Fish production in many of the lakes in the planning area is limited by a lack of suitable spawning areas and the shallow depths of the lakes. Important sportfish populations are found in 12 lakes in the area. Six lakes contain naturally reproducing populations of warm-water fish species (northern pike, yellow perch and walleye). Swan Lake contains a unique indigenous population of lake trout. Brook or rainbow trout have been stocked in six lakes within the planning area.

Although recreational angling occurs throughout the planning area, productive streams such as Prairie Creek and the North Saskatchewan River and stocked lakes such as Cow, Mitchell and Struble receive the most fishing pressure. Swan Lake is fished intensively during the spring. Most of the fish producing lakes in the area are readily accessible and are designated for day-use. A few lakes have overnight camping facilities.

Broad Management Objectives

1. To maintain and/or increase natural fish populations and establish new populations through stocking of fish in suitable locations.

2. To maintain and/or increase the quality and quantity of aquatic habitat required to support fish populations at optimal densities. Components of this objective include:

   - to protect habitat and migratory routes which are critical for the survival of specific fish populations. Specific habitat areas to be protected include spawning, overwintering and rearing areas;

   - to protect lakes with fish stocking potential;

   - to enhance or create sportfish habitat in appropriate locations.

3. To provide a variety of angling opportunities for recreational use of fisheries resources. Components of this objective are:

   - to provide a diversity of angling opportunities and locations;

   - to meet a service standard that would provide a success rate of 0.3 fish per angler hour for naturally reproducing fish populations and 0.5 fish per angler hour for productive stocked lakes.

Broad Management Guidelines

1. Sportfish populations and habitat will be protected by minimizing contact between resource developments and streams, by maintaining water quality and by reclamation of disturbed sites.

2. Angling regulations will be regularly reviewed in relation to angler use, harvest levels and the conditions of fish populations, to ensure the long-term survival of naturally reproducing sportfish populations.

3. Angler surveys on lakes and streams will be completed by 1995 to measure recreational use and fish harvest. Subsequent surveys will be conducted at ten year intervals.

4. Fish and Wildlife Division will continue to review and provide input to government referrals on land use activities which have potential for negative impact on fisheries resources.

5. Appropriate agencies (e.g., Recreation and Parks, Alberta Forest Service) will be consulted prior to initiation of fish stocking programs, which may create demands for recreational facility development.

6. Adequate public access to fisheries will be maintained.

6.6 Recreational Resources

Discussion

The Rocky-North Saskatchewan Planning Area supports an overall moderate level of recreational use with specific sites (i.e. Prairie Creek valley) receiving a high level of use. Much of the planning area has a moderate to high recreational value with the major attractions being water courses and lakes. Hunting, fishing, automobile access, group and random camping, snowmobiling, cross-country skiing and off-highway vehicle use are the dominant land based activities. Water traversing activities such as canoeing and jet boating are popular on the North Saskatchewan River.

Crimson Lake Provincial Park is the largest recreational facility in the planning area and currently provides approximately one-half of the total number of formal camping units in the area. The Alberta Forest Service operates and maintains the majority of the 17 recreation developments which are scattered throughout the planning area.

Use of recreation areas increased substantially through the 1970s but has recently levelled off with increases projected to be slight. Use may be affected in the future by potential large-scale resource development within and adjacent to the study area.

Broad Management Objectives

1. To maintain and/or increase the quality and quantity of a broad range of recreational and leisure opportunities, primarily to meet the present and future needs of the residents of central Alberta. Components of this objective are:

- to provide resource oriented, dispersed, intensive and extensive recreation opportunities including automobile access camping, group camps, trails (summer and winter use) and water access points;

- to consider the disposition of Crown lands for commercial and private sector tourism and recreational facility development.

- to protect areas with high recreational potential.

2. To maintain and/or increase the level of use of recreational resources. Major components of this objective are to encourage private sector development of recreational resources and to ensure the provision of adequate access to recreational resources for formal and informal groups.

Broad Management Guidelines

1. Existing automobile access camping facilities will be maintained and upgraded as necessary. A major expansion of existing automobile access camping facilities is not justified by demand at this time.

2. The Fish and Wildlife Division will be consulted during the planning of those recreational developments which may result in increased recreational angling pressure or damage to sensitive or unique fisheries populations or habitat.

3. The size and location of campsites will be major considerations in determining the acceptability of serviced camping in Critical Wildlife Zones.

6.7 Forage Resources

Discussion

As previously mentioned, the eastern fringe of the Rocky-North Saskatchewan Planning Area is within the White Area where domestic grazing is managed by the Public Lands Division and the remainder of the planning area is in the Green Area where the Alberta Forest Service manages domestic grazing. As a result of this jurisdictional split, information about the forage resource and grazing was collected for the Green and White Area portions of the planning area.

Slightly over three-quarters of all domestic grazing on public lands within the Rocky-Clearwater Forest occurs within the Green Area portion of the Rocky-North Saskatchewan Planning Area. A total of 103 grazing leases, licences and permits are located within this area. These grazing dispositions provide a total of 16 474 animal unit months of grazing. Seven range allotments and head tax permits provide an additional 3189 animal unit months. The Rocky Mountain House Grazing Reserve, which is within the planning area boundaries but is discussed under a separate integrated resource plan (ENR Report T/1-No. 2), will provide between 5900 and 7500 animal unit months when fully developed in 1986. The grazing reserve should alleviate some of the demand for additional grazing dispositions and may be used to accommodate domestic livestock which are relocated from other Crown lands (e.g., Critical Wildlife Zones). Formal range management plans have not been developed for all of the grazing dispositions within the Green Area and many of the dispositions with plans require updating due to problems with over- or underutilization, livestock distribution and brush encroachment.

The potential grazing capacity on public land dispositions in the White Area is approximately 10 700 animal unit months. Most leases were fully utilized during the 1978-1981 period.

Demand for range improvement in the planning area increased significantly in 1980 when the government introduced the Public Grazing Land Range Improvement Program which provides 100 per cent funding for range improvement. The growth in numbers of beef cattle since 1956 and the increased acreage for tame hay has produced a strong demand for additional grazing land. Demand for vacant Crown land is substantial considering much of the land is of low capability. The future demand for improved and unimproved grazing land is expected to increase mainly along the settled fringe. Farm expansion and herd enlargement will require more land as present land is converted to forage production for winter feed.

Only 0.04 per cent (1054 ha) of the total Crown land within the Green Area, which is not under disposition, has been identified by the Alberta Forest Service (AFS) as having good to very good potential for unimproved grazing. The Alberta Forest Service has also identified approximately 0.07 per cent (1440 ha) of these Green Area lands as having good to very good improved grazing potential. The potential for unimproved and improved grazing in the Green Area is considered to be low by the AFS. The AFS assessment of grazing potential was based on Phase Three Forest Inventory and considered access, forage quality and quantity, soil limitations, existing vegetation and drainage. A low priority was placed on forest stands composed of high percentage of conifers.

Public Lands Division rated approximately one-half of the entire planning area as having moderate capability for unimproved grazing with the land to the east of the North Saskatchewan River having the greatest concentration of this class. Public Lands Division also considers the land located to the east of the North Saskatchewan River to have the greatest capability and potential for improved grazing. Large areas of land with suitable soil, slope, land pattern and climatic conditions are found in this area. Grazing dispositions cover much of this land and many dispositions are in close proximity or adjacent to patent land. Public Lands Division based its assessment of grazing capability on the ecosections contained in the Ecological Land Classification study as well as limited field inspections.

Broad Management Objectives

1. To increase the quantity and quality of forage resources. Components of this objective are:
   - to maintain and/or improve forage production and range condition on existing and potential grazing areas;
   - to maintain or increase the amount of public land available for forage production.
2. To maintain and/or increase the level of grazing by wildlife and domestic livestock.
3. To ensure that use of grazing dispositions does not exceed established carrying capacities.
4. To monitor and manage escaped and/or abandoned horses.

Broad Management Guidelines

1. Management techniques which increase the availability and utilization of the existing forage resource will be considered before clearing land for additional forage production.
2. An increased level of management of forage resources is required. Range management plans (or updated plans) will be completed for the majority of the grazing dispositions in the planning area to help resolve overutilization and distribution problems.
3. The negative impacts of escaped and/or abandoned horses along roads and on rangelands will be minimized by utilizing appropriate management practices.

6.8 Agricultural Resources

Discussion

Agricultural development is focused on patent land along the eastern edge of the planning area. The best arable land in the White Area has been developed to support a mixed farming economy. Tame hay is the dominant crop which is produced and some coarse grains are grown. Beef and dairy cattle are the principal livestock raised and there are a few sheep and horse operations.

A large percentage of Crown lands in the White Area portion of the planning area is currently under grazing disposition. Since the major portion of White Area land is patent, the potential for agricultural expansion within the White Area is severely limited. The greatest potential for agricultural development is the block of land, which is currently in the Green Area, in portions of Townships 44 to 47, Ranges 7 to 9, west of 5. Portions of this block are classified as Class 4 agricultural land by the Canada Land Inventory. The remainder of the block is rated as Class 5 for agriculture because of climatic limitations. The area is suitable for production of perennial forage crops. An evaluation of the agricultural capability of the area is currently under way. The proximity of the area to markets, services and amenities would probably result in a high demand for arable land, should such land be identified and released for farm expansion and settlement.

Broad Management Objectives

1. To make suitable lands available for agricultural development.

2. To increase the amount of cultivation on suitable land.

Broad Management Guidelines

1. No broad management guidelines for agricultural resources were identified for the planning area as a whole (see Section 7.1.2.8 for specific guidelines).

6.9 Ecological Resources

Discussion

Ecological resources are unique or representative ecological features or systems which have been identified within the planning area. Ecological resources are protected in 12 natural areas and one provincial park within the Rocky-North Saskatchewan Planning Area. The natural areas were established under order-in-council or reservation and are intended for conservation of natural features and for educational and recreational use. Most of the natural areas are small and are scattered along the North Saskatchewan River in the eastern portion of the planning area. Ecologically significant areas have also been identified in the McGregor Lake and O'Chiese areas. Crimson Lake Provincial Park is west of Rocky Mountain House and was established to provide recreational opportunities and to protect ecological resources.

Broad Management Objectives

1. To preserve selected unique or representative natural ecosystems or features.

2. To provide for the recreational, scientific and educational use of ecological resources.

Broad Management Guideline

1. Appropriate land use reservations or notations will be maintained or applied to protect ecological resources.

6.10 Historical Resources

Discussion

The focus of human use of the Rocky-North Saskatchewan Planning Area has historically been the exploitation and development of natural resources. Evidence of prehistoric use of the planning area has been found at numerous small prehistoric campsites which are mainly located along the North Saskatchewan River and in the Highway 11 corridor. These archaeological sites are thought to be short term campsites left by prehistoric hunting parties. Little investigation of prehistoric sites has occurred in the planning area and the potential for further discoveries is high near waterbodies. The apparent focus of prehistoric sites along Highway 11 and the North Saskatchewan River partly reflects the fact that these are the areas in which archaeological survey work has been conducted and does not negate the possibility of sites being located elsewhere.

The fur trade was active in the planning area during the late 1700s. The Hudson's Bay Company and the North West Company both established trading posts near the confluence of the North Saskatchewan and Clearwater rivers in 1799. The site of several fur trading posts is now within Rocky Mountain House National Historic Park which is operated by Parks Canada.

Forestry became an important activity in the planning area in the late 1800s. Timber was sent to Edmonton from the Buck Lake area in the 1870s. The Brazeau Forest Reserve was created in 1911 and there were timber berths on the Nordegg River in 1915. Most of the eastern portion of the planning area was selectively logged between 1910 and 1945. A few old forestry cabins are historical resources from this period.

Coal mining in the planning area began in the early 1900s and was centred around the mining operation at Nordegg. The Canadian Northern Railway was constructed to haul coal out of the area and reached Nordegg from Rocky Mountain House in 1913. Coal mines were established at Alexo and Saunders in the late 1920s. These mines and the mine at Nordegg have long since been closed. Investigation of historic sites in the Nordegg area and along the rail line remains to be done.

Oil and gas exploration in the planning area began in the 1930s. Significant petroleum and gas development occurred in the area to the north of Rocky Mountain House in the late 1950s and in the remainder of the planning area during the 1960s.

Another feature of the planning area is the O'Chiese and Sunchild Indian Reserves. The Sunchild Reserve was established in 1944 by Cree Indians from North Battleford, Saskatchewan who settled in the region in 1930. The O'Chiese Reserve was established in 1950 for Saulteaux Indians who had lived in the region for over 50 years.

Broad Management Objectives

1. To protect historical resources (historic, prehistoric and palaeontological) from impact associated with development.

2. To provide for scientific, educational and recreational use of historical resources.

Broad Management Guideline

1. Resource uses, which necessitate surface disturbances, may require Historical Resource Impact Assessments as outlined under Section 33(2) of the Historical Resources Act.

2. The Archaeological Survey of Alberta will participate in the land use referral process to review proposed development projects and to ensure that historical resources are protected.

6.11 Tourism Resources

Discussion

Tourism resources in the Rocky-North Saskatchewan Planning Area are mainly related to outdoor recreational opportunities. Camping, fishing and hunting are major attractions to tourists who visit the area. Scenic touring along the David Thompson Highway and canoeing or jet boating on the North Saskatchewan River are also popular activities. Other attractions in the planning area are Crimson Lake Provincial Park and the Rocky Mountain House National Historic Park. Commercial tourist developments include the Wilderness Village and Pine Hills Golf Course located near Crimson Lake Park and the Terratima Cross Country Ski Hostel near Struble Lake.

The potential for development of tourist attractions based on industrial operations such as gas processing plants and sawmills has been identified within the planning area.

Broad Management Objectives

1. To promote development of parts of the Rocky-North Saskatchewan Planning Area as a year-round travel destination area.
2. To ensure the continuation of existing tourism operations to meet the recreational and social needs of residents and visitors to the area.
3. To provide opportunities for the private sector to participate in developments which cater to the needs of the users of the area.
4. To encourage the development of commercial and private sector tourism and recreational facilities on Crown and private land.

Broad Management Guideline

1. No broad management guidelines for tourism resources were identified.

6.12 Surface Material Resources

The main surface meterial resources within the Rocky-North Saskatchewan Planning Area are sand and gravel deposits. Most of the leases for extraction of sand and gravel are located adjacent to the main rivers. Gravel is being extracted from the floodplain of the North Saskatchewan River at several locations. Local shortages of sand and gravel have been identified in the planning area.

Broad Management Objective

1. To provide for the orderly exploration and development of surface materials (sand and gravel) in a manner that is compatible with environmental considerations.

Broad Management Guidelines

1. The Aggregate Inventory Group of Energy and Natural Resources will identify the location and extent of sand and gravel deposits.

6.13 Access

Discussion

The major portion of the Rocky-North Saskatchewan Planning Area is accessible by public roads including roads which have been developed by the oil and gas industry. The only large area within the planning area with limited road access is in the northwest in the headwaters of the Nordegg and Baptiste rivers.

The David Thompson Highway (Highway 11), a paved highway running from Rocky Mountain House to Nordegg, is the main access route into the planning area. The Forestry Trunk Road (Secondary road 940) is a gravel road which forms the northwestern boundary of the planning area. This road is an important resource extraction and recreation access route. The Sunchild road runs from Highway 11 to the Brazeau Dam and provides access to the central portions of the planning area. The Sunchild road is currently being upgraded. Secondary road 752 provides access from Rocky Mountain House to the Strachan and Prairie Creek area and connects with the Forestry Trunk Road. Highway 22 runs on a north-south alignment and provides access to the eastern portion of the planning area. Highway 22 is also currently being upgraded. Highway 12 provides access to the Town Lake area in the eastern portion of the planning area and Highway 53 provides access to the east-central area. In addition to major access roads, there are also many smaller roads which are associated with the oil and gas industry. A complex network of seismic lines also provides access throughout the planning area.

There are several railway lines in the planning area. The abandoned Canadian Northern Railway right-of-way links Nordegg with Rocky Mountain House via the North Saskatchewan River Valley. The Gulf and Canterra gas plants located in the southwest are linked by rail with Rocky Mountain House. There is also a Canadian Pacific Railway line which crosses the eastern part of the planning area near Town Lake.

Broad Management Objectives

1. To co-ordinate the development of access to minimize negative effects on various resources and users.
2. To meet the access requirements of resource users where appropriate.

Broad Management Guidelines

1. Resource users will be encouraged to use common access corridors to minimize environmental effects and duplication of effort and expense.
2. Forest vehicle routes will be identified within a portion of the planning area to manage recreational vehicle access.

7. RESOURCE MANAGEMENT AREAS

The Rocky-North Saskatchewan Planning Area was divided into four smaller resource management areas (RMAs) to facilitate the geographic location of resource management objectives. The planning area has been divided into the following resource management areas (see Figure 5): 1) Rose Creek - Red Deer River, 2) North Saskatchewan River, 3) Nordegg - Baptiste and 4) Prairie Creek.

More specific resource management objectives and guidelines were developed for the individual resource management areas within the context of the resource management strategy (primary intent and broad resource management objectives and guidelines in Section 6) which applies to the entire planning area. The degree of definition or refinement of objectives and guidelines varied among resource management agencies, depending upon factors such as available information and the allocation of manpower and financial resources by each agency.

The geographic location and resource use aspects of the resource management objectives were further refined by utilizing the Eastern Slopes Policy zoning categories and resource use matrix. Differences between the 1977 Eastern Slopes Policy regional zoning (Figure 2) and the zoning configuration presented in the Rocky-North Saskatchewan Sub-regional Plan are associated with the refinement of resource management objectives on the basis of new and more detailed resource information. The new zoning configuration should allow achievement of stated resource management objectives to a level which is acceptable to the involved agencies.

This section of the document is organized according to the four resource management areas which are presented in Figure 5. A general description of the resource management area, brief resource descriptions, specific resource management objectives and guidelines and the locations of zones for each resource management area are provided.

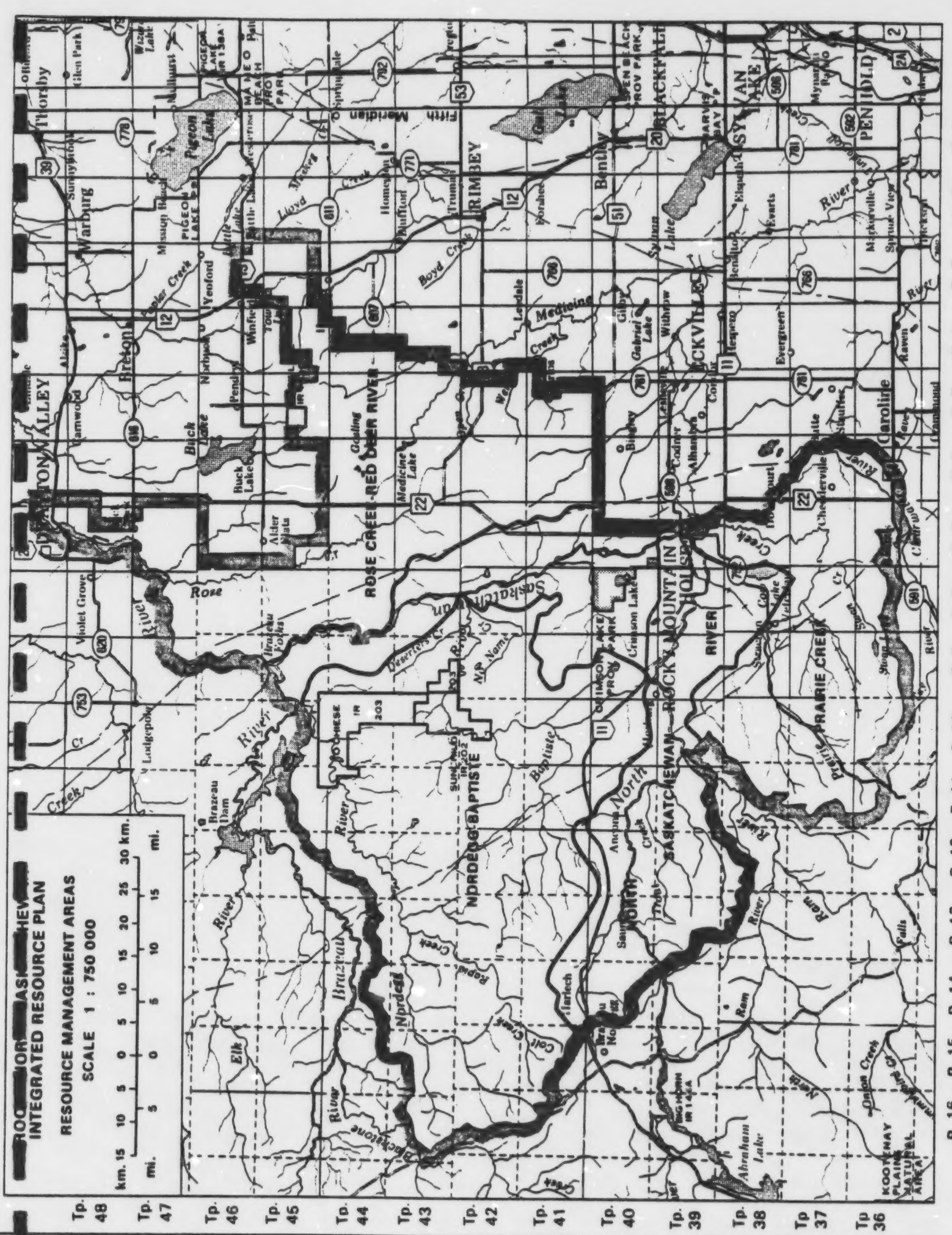

Figure 5 RESOURCE MANAGEMENT AREAS

7.1 Rose Creek - Red Deer River Resource Management Area

7.1.1 General Description

The Rose Creek - Red Deer River Resource Management Area is an area of approximately 1640 km^2 in the northeastern sector of the Rocky-North Saskatchewan Planning Area (see Figure 6). The major water courses in the RMA are the North Saskatchewan, Blindman and Medicine rivers, and Rose and Washout creeks. Medicine, Blindtrail, Cranberry and Gosling lakes are located in the central portion of the area and Town and Twin lakes are in the northeast corner. The majority of the RMA is within the Boreal Foothills ecoregion which represents a transition between the mainly deciduous Boreal Mixedwood ecoregion and the mainly coniferous Boreal Uplands ecoregion. Forest cover is dominated by deciduous species and consists of mixedwood stands of aspen, balsam poplar, white birch, lodgepole pine, white spruce and black spruce. Scattered organic areas are found throughout the RMA. Major physiographic features are the Brazeau Plain in the northwest and the Buck Lake Upland in the eastern and southern portion of the area.

7.1.2 Resource Management Strategy

The primary intent for resource management in the Rose Creek - Red Deer River Resource Management Area is:

> To provide for the utilization of petroleum and natural gas, timber, agricultural, forage, fisheries and wildlife resources.

Specific resource management objectives and guidelines were developed for the indicated resource sectors. No priority is intended or implied by the sequence of the following objectives and guidelines.

7.1.2.1 Water and Watershed Resources

Discussion

The major watersheds within the Rose Creek - Red Deer River RMA include portions of the North Saskatchewan, Blindman and Medicine rivers and Rose and Washout creeks. The Medicine River falls within the Red Deer River basin. The area has a relatively low value for water production and an overall moderate to high watershed sensitivity. Water produced within and flowing through the RMA is used extensively by downstream consumers. Major concerns are the effect of activities on private lands and any clearing in the valley bottoms which could

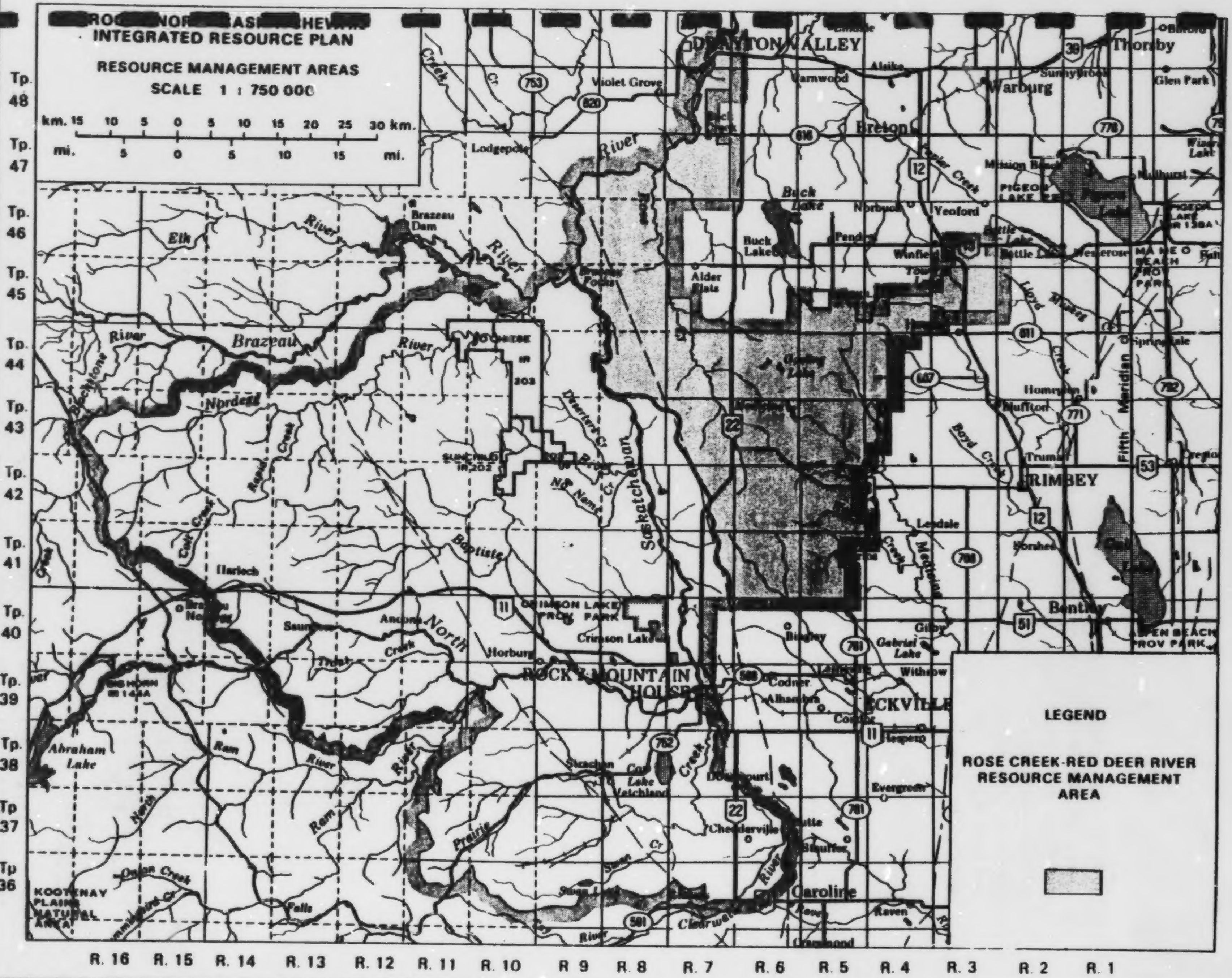

Figure 6 ROSE CREEK-RED DEER RIVER RESOURCE MANAGEMENT AREA

potentially result in water quality deterioration. Heavy slump-prone clays in the Rose Creek drainage are another concern and water quality problems have been identified in Rose Creek. Streams generally exhibit a high potential for channel and bank damage and there have been numerous erosion problems at stream crossings. An area in the northwestern portion of the RMA has been identified as having potential for agricultural expansion.

Management Objectives

1. To improve water quality in the Rose Creek drainage.

Management Guidelines

1. Water quality will be maintained or improved by:

   a) minimizing the amount of clearing in river and stream valley bottoms especially on erosion-prone slopes,
   b) minimizing contact between development activities and streams,
   c) more intensively managing the watersheds of this RMA, and
   d) ensuring that adequate stream crossing designs and types are utilized.

2. Crown lands in the proposed agriculture expansion area which are required for watershed protection will be retained under public ownership.

3. The number of stream crossings associated with linear developments will be minimized.

4. Land use activities in areas of poor drainage and high erodibility will be confined to the winter months wherever possible.

5. Better information about the effects of land use and management activities on water quality, quantity and timing will be required.

6. A greater management emphasis will be placed on erosion control and reclamation.

7.1.2.2 Mineral Resources

Discussion

This RMA is the most important for petroleum production within the planning area. Petroleum production in 1982 was approximately

800 000 m^3 and reserves were estimated to be over 22 million m^3. Natural gas production and reserves were 440 million m^3 and 10 billion m^3, respectively. There are currently over 500 oil wells and three gas processing plants in the RMA. The infrastructure associated with the oil and gas industry is extensive. A large portion of the RMA is underlain by eight petroleum and natural gas fields and nearly 100 per cent of the petroleum and natural gas rights within the RMA have been disposed.

Some underground coal exists in the eastern corner of the RMA adjacent to the Drayton Valley coal field which is contiguous with the planning area.

Management Objective

1. To provide opportunities for the continued exploration, development and production of petroleum and natural gas resources.

Management Guideline

1. Coal, petroleum, natural gas and mineral exploration and development will not be permitted in the small General Recreation zone on Medicine Lake.

7.1.2.3 Timber Resources

Discussion

This RMA falls within the R1 and R01 Forest Management Units. The R1 FMU is in the Green Area portion of the RMA and the R01 FMU is in the White Area. Mature timber is disposed of by liquidation cutting within the R01 FMU and, once cleared, the land can be considered for agricultural development. At present there is both coniferous and deciduous timber AAC available within the RMA. The majority of the coniferous timber available is immature and unsuitable for sawlogs under present utilization standards. The O'Chiese block of the Brazeau TDA covers over half of the RMA and will result in an increase in utilization of both coniferous and deciduous timber resources, if awarded.

Management Objectives

1. To provide for increased utilization of both coniferous and deciduous timber resources on an optimum long term sustained yield basis to meet the requirements of quota holders, local operators and the Brazeau Timber Development Area.

2. To ensure utilization of timber resources on lands which have been identified for agricultural development.

Management Guidelines

1. The proposed Green Area/White Area boundary will form the eastern boundary of the forest land base. The proposed boundary is presented on map RNS-1 in the map pocket.

2. Wherever possible, timber on those White Area lands which are identified for agricultural development will be allowed to reach merchantable size before harvesting and not windrowed, burned or similarly disposed of.

7.1.2.4 Wildlife Resources

Discussion

The Rose Creek - Red Deer River Resource Management Area supports a mainly mixedwood forest with scattered, moist, organic areas occurring throughout. This diversity of habitats is good for moose and both species of deer as well as black bear and coyotes. The area also provides excellent upland bird habitat. Elk occur in lower numbers mainly along the North Saskatchewan River. The valleys of the North Saskatchewan River, Rose Creek and other streams plus the organic/moraine complexes provide key winter habitat areas and travel corridors for most ungulates and furbearers.

Management Objectives

1. To maintain stable populations of 1000 moose, 150 elk, 800 mule deer, 1000 white-tailed deer, 50 black bear, 15 cougar and 400 coyotes.

2. To maintain wolf populations at acceptable levels.

Management Guidelines

1. The elk population in this RMA will be maintained as long as crop depredation problems can be controlled by measures other than eliminating the elk.

2. The Medicine Lake and Rocky Mountain House grazing reserves will be managed for the benefit of wildlife as well as cattle.

3. Wildlife habitat assessment should be completed on any Crown land which is being considered for sale, to determine the acceptability of such sale and define any caveats which may be required if the land is sold.

4. Wolves will be removed to minimize livestock losses when complaints are verified.

5. A mixedwood forest should be maintained and managed to provide a broad range of species and age classes which will optimize wildlife productivity.

6. Motorized vehicle harassment of wildlife populations, which is a problem particularly in the Rocky Mountain House Grazing Reserve, should be eliminated.

7. Fish and Wildlife Division will review subdivision applications to ensure that detrimental effects on wildlife habitat and populations are minimized.

8. Strict access control and rapid reclamation will be required to ensure negative impacts on wildlife populations are minimized as resource development occurs.

7.1.2.5 Fisheries Resources

Discussion

The Rose Creek - Red Deer River RMA has limited potential for supporting a cold water fishery. Northern pike, walleye and sauger as well as mountain whitefish are the predominant sportfish species present. The most significant streams are the North Saskatchewan River, Rose Creek and the Medicine River. Information is lacking on key habitat areas and population densities. Spawning and rearing is known to occur in these rivers but site specific areas have not been identified.

Agriculture and to a lesser extent the oil industry and beaver activity are affecting the stream environment in Rose Creek.

There are three lakes (Open Creek Reservoir, Gosling and Medicine lakes) within this RMA which are providing moderate angling opportunities. Open Creek Reservoir has recently been rehabilitated and is currently providing an excellent trout fishery.

Management Objectives

1. To maintain water quality and protect the following habitat areas which are critical for the indicated fish populations:
   - spawning, rearing and overwintering areas for mountain whitefish in the North Saskatchewan River,
   - spawning and rearing areas of northern pike on lower reaches of Rose and Washout creeks.
2. To maintain sufficient flows in the North Saskatchewan River in order to provide adequate spawning, overwintering and rearing areas and to protect fish migratory corridors.
3. To maintain or enhance the fish stocking potential of the Open Creek Reservoir.
4. To maintain or enhance the fisheries production potential of Medicine and Gosling lakes.

Management Guidelines

1. Additional fisheries survey work is required to refine the location of critical habitat areas, to determine population sizes and to identify waterbodies with stocking potential. This information is necessary to establish more specific guidelines for management and protection of fish populations in the RMA.
2. Detailed fisheries management plans should be developed for key lakes (Medicine, Gosling and Open Creek Reservoir) and streams in the RMA.
3. Domestic stock grazing combined with natural erosion has had negative impacts on a number of streams in the RMA. Improved livestock management should be encouraged on leased Crown land and private lands bordering water courses to alleviate the problem.
4. Ecological Corridor Agreements will continue to be a condition of sale for any Crown land which borders or includes streams, to ensure water course protection and the retention of adequate buffers.
5. Operational plans for resource developments in the RMA must make special consideration of the high soil erosion potential along water courses such as Rose Creek.

7.1.2.6 Recreational and Tourism Resources

Discussion

The RMA currently supports a moderate level of recreational use, primarily camping, snowmobiling and hunting. Fishing and water-based activities such as canoeing, kayaking and jet boating are popular on the North Saskatchewan River. Within the Rocky-North Saskatchewan Planning Area this RMA has the lowest potential for intensive recreation activities and facility development. The area has a moderate potential for extensive recreation activities (primarily winter) such as informal cross-country skiing and snowmobiling. The Medicine Lake Recreation Area is generally used below capacity on weekdays and at or near capacity on weekends. Most of the recreational use of this facility is by residents of the immediate region. Several lakes with potential for water access point development have been identified within the RMA. There is a municipal recreation area at Twin Lakes near Winfield and the western lake is popular for scuba diving.

Management Objectives

1. To maintain and provide outdoor recreation opportunities for automobile access camping and year-round traversing activities in the Medicine Lake area.

2. To provide group camping opportunities.

Management Guidelines

1. Automobile access camping facilities will be upgraded as required. Further expansion of existing facilities is not justified by demand at this time.

2. Opportunities exist for the development of snowmobile trails in the RMA, particularly within the Rocky Mountain House Grazing Reserve. Trail development in the RMA, as identified in the Rocky Mountain House Grazing Reserve Integrated Resource Plan, will not occur until consideration is given to areas with a higher potential and priority in other RMAs.

3. A group camp will be developed in the Medicine Lake area to meet the demand for group camping facilities in the north-eastern portion of the Rocky-Clearwater Forest.

4. Residential subdivisions will not be permitted in the General Recreation Zone on Medicine Lake.

5. The feasibility of providing water access points at Blind Trail and Gosling lakes will be assessed. Further facility development in this area has a low priority.

6. The private sector will be encouraged to provide, where appropriate, commercial trail support services (e.g., outfitting, rentals) and overnight shelters.

7.1.2.7 Forage Resources

Discussion

Domestic grazing occurs on 35 leases, one licence and nine permits in the Green Area portion of the RMA and the total carrying capacity is 6741 AUMs. From 1976 to 1980 the average annual use of the dispositions totalled 97 per cent of the carrying capacity. Over the same period utilization exceeded the carrying capacity on 22 of the 45 dispositions and problems with management and distribution have been identified. Several currently unallocated areas along Rose Creek have been identified as having unimproved grazing potential. Due to the lack of unimproved grazing potential elsewhere in the planning area, this RMA has been identified as being regionally important.

There are 11 grazing permits and 44 grazing leases for a total of 55 grazing dispositions within the White Area portion of the RMA. The total carrying capacity for this area is rated as 5486 AUMs. This White Area land augments patent land and the grazing dispositions are generally fully utilized.

Ten of the grazing dispositions within the Green Area have had range improvement projects in the last two years and nine White Area dispositions had range improvements prior to 1981. Demand for additional carrying capacity is present. The Rocky Mountain House Grazing Reserve falls within the RMA and should serve to alleviate some of the demand for additional rangeland, when it is fully developed.

Management Objectives

1. To increase forage production and utilization in the White Area.

2. To ensure that use of grazing dispositions does not exceed established carrying capacities.

Management Guidelines

1. A review of all grazing dispositions is required. The priority will be placed on those dispositions which have been consistently overutilized.

2. This RMA will have the highest priority within the Rocky-North Saskatchewan Planning Area for intensified management of the forage resources on leases, licences and permits because of the overutilization and distribution problems.

3. The carrying capacity of suitable grazing dispositions will be increased through various government assistance programs as well as the lessee's own means, contingent upon acceptance of an approved range management plan.

4. Development of the Rocky Mountain House Grazing Reserve will continue as directed by the Rocky Mountain House Grazing Reserve Integrated Resource Plan.

5. Land in the White Area which is unsuitable or at present unavailable for cultivated crops or improved grazing will be made available for unimproved grazing where appropriate. This applies particularly to the Rose Creek area.

7.1.2.8 Agricultural Resources

Discussion

As previously stated, a block of land west of Alder Flats in Townships 44 to 47, Ranges 7 to 9, W5, has potential for agricultural development. Evaluation of the arable capability of the land began in 1983 with the establishment of climatic monitoring stations. The demand for agricultural land in this area is considered to be high.

Management Objectives

1. To develop cultivation on suitable land with capability for crop production in the Rose Creek area.

Management Guidelines

1. The Green Area lands which are outside the Brazeau Timber Development Area (Townships 44-47, Ranges 7-9, west of 5) will be converted to White Area. The proposed Green Area/White Area boundary is presented on map RNS-1 in the pocket at the back of the document.

2. The soil resource in Townships 44 to 47, Ranges 7 to 9, west of 5, west of Rose Creek will be evaluated by means of detailed soil surveys to determine agricultural capability.

3. Temperature and precipitation data from the five climatic stations which were established in the Rose Creek area in May, 1983, will be evaluated to determine where cultivated crops are feasible. Data gathering will continue until 1987 at least.

4. Grazing dispositions may be granted on suitable lands in the White Area which are deemed unsuitable for cultivated crops or tame forage production.

5. A legal survey and installation of necessary services including roads, will be required to facilitate agricultural development of land in the Rose Creek area.

6. Involved agencies will use appropriate mechanisms (e.g., referrals, operational plans) to ensure orderly development of the Rose Creek agricultural expansion area.

7.1.2.9 Ecological Resources

Discussion

Ecological resources within the Rose Creek-Red Deer River RMA are protected in six established natural areas.

Management Objectives

1. To protect indicated ecological resources at the following established locations:

   a) Lloyd Creek Natural Area contains geomorphic features including meltwater channels, underfit streams, steep embankments and some terracing as well as an interesting wetland mosaic. The legal description of the area is S 1/2 & NW 1, N 1/2 2, N 1/2 & SE 3, & SE 11 in 46-3-W5M.

   b) Washout - Saskatchewan Natural Area contains diverse upland and wetland vegetation and a good example of upland mixedwood forest. The description of the area is NE 7, SW 19 (east of river), NE 29, SW 30 (east of river), LSD 3-5 of Section 32 (south of river), SE 32, & NE & S 1/2 33 in 47-7-W5M.

c) Pembina Field Natural Area contains a diversity of vegetation and geomorphology and has identified recreational potential. The location of the area is NW 3 (east of river), SE 9 (east of river), E 1/2 21 east of river), W 1/2 22 (east of river), SE 34 (east of river) & Section 35 (east of river) in 48-7-W5M.

d) Drayton Valley Natural Area contains unusual slope diversity and a variety of geomorphic features and aspects as well as diverse vegetation. The legal description of the area is SE 1, 2 (east of river), SE 10 (east of river), N 1/2 11 (east of river), SW 11, SE 14 (east of river), NE 29 & SE 36 in 49-7-W5M.

e) Welch Creek Natural Area contains a mosaic of wetlands and a diversity of habitats and plant species. The location of the area is SW 11-42-5-W5M.

f) Anderson Creek Natural Area contains diverse vegetation in upland and wetland areas. The description of the area is NW 5 & N-1/2 32 in 44-4-W5M.

Management Guidelines

1. Appropriate land use reservations will be maintained in order to preserve established natural areas.

7.1.3 Zoning for the Rose Creek - Red Deer River Resource Management Area

The Eastern Slopes Policy zoning categories were used to locate resource management objectives geographically. The revised Eastern Slopes Policy zoning configuration is indicated on the map in the map pocket (Figure RNS-1). A brief description and rationale for the zoning within the Rose Creek - Red Deer River Resource Management Area follow.

Critical Wildlife - in the following locations for the indicated reasons:

1. Riparian areas along the North Saskatchewan River, Rose and West Lobstick creeks and associated tributaries to protect winter range and migratory routes for ungulates (i.e. elk, moose and mule deer).

2. Area of mixed hummocky moraine and organic deposits near Medicine Lake and in the vicinity of Township 44, Range 5, west of 5, to protect ungulate winter habitat.

3. Upland area in Townships 43 and 44, Ranges 7 and 8, West of 5, to protect winter range for elk, moose and mule deer.

4. Smaller scattered areas of mixed organic and morainal materials to protect ungulate winter range.

Special Use - established natural areas along the eastern edge of the RMA within the following townships: Townships 47 to 49-Range 7, Township 46-Range 3, Township 44-Range 4 and Township 42-Range 5, all west of 5, to recognize the unique management requirements of these areas and allow for protection of ecological resources.

General Recreation - the area of the D-reservation on the northeastern shore of Medicine Lake to allow continued recreational use and development of recreational facilities.

Multiple Use - the portions of the RMA which are outside of Critical Wildlife, Special Use, General Recreation, Agriculture and Industrial zones to allow for a broad range of resource utilization.

Agriculture - a large block of land in Townships 44 to 47, Ranges 7 to 9, west of 5, and scattered parcels of relatively high capability land along the northern, eastern and southern edges of the RMA to allow improved grazing or cultivation.

Industrial - in SE 17 - Township 42, Range 6, west of 5, to accommodate an existing gas plant.

7.2 North Saskatchewan River Resource Management Area

7.2.1 General Description

The North Saskatchewan River Resource Management Area consists of 1630 km^2 stretching across the central part of the Rocky-North Saskatchewan Planning Area (see Figure 7). The major waterbodies in the area are the North Saskatchewan River, Shunda, Rough, Cow, Meadows, Trout and Lundine creeks and Crimson, Twin and Cow lakes. The RMA spans three ecoregions. The eastern portion of the area is within the Boreal Foothills ecoregion and the western onethird of the area is within the Boreal Uplands ecoregion. As previously mentioned, the Boreal Foothills ecoregion is characterized by mixedwood forest cover with aspen dominating. Lodgepole pine replaces aspen as the dominant tree

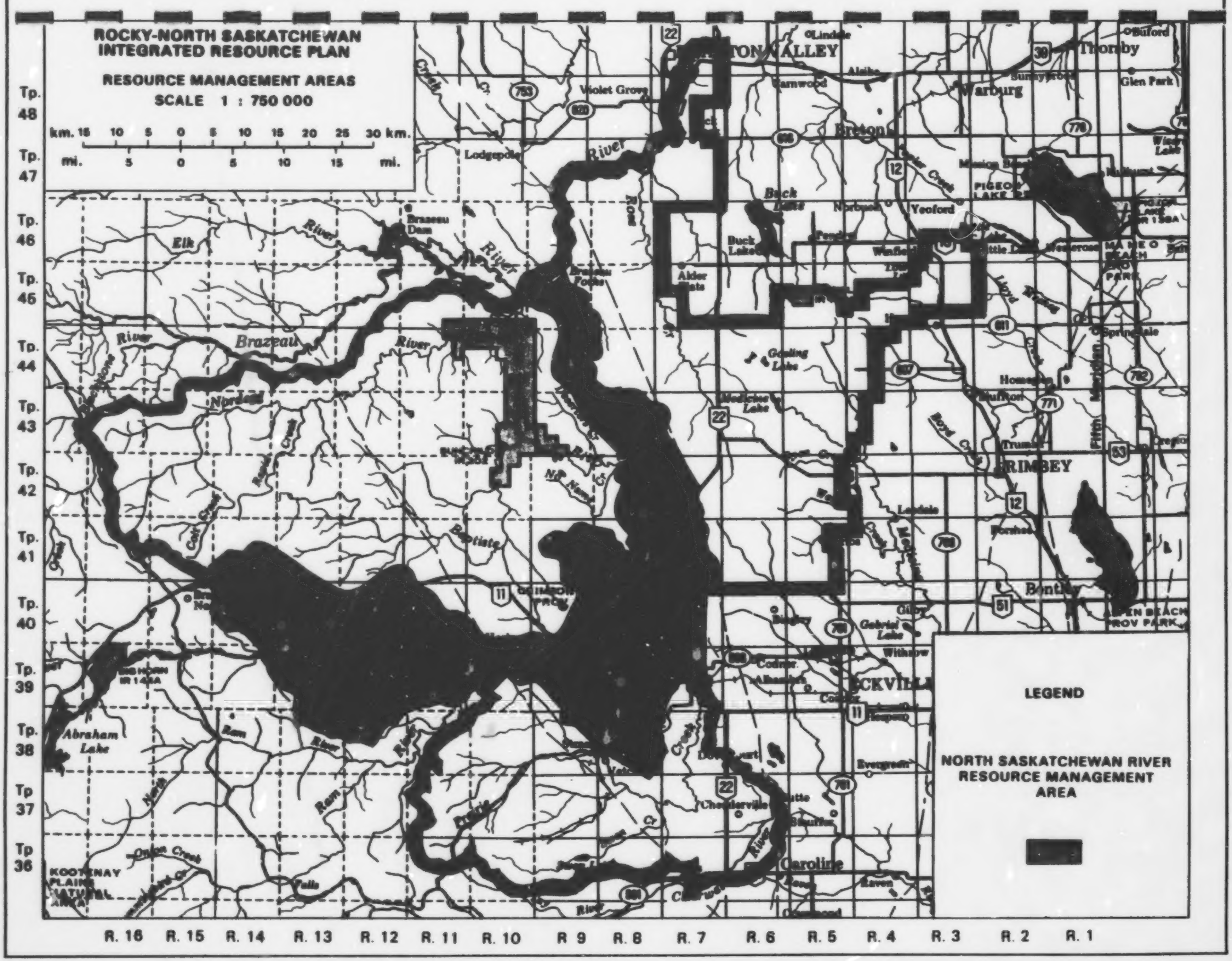

Figure 7 NORTH SASKATCHEWAN RIVER RESOURCE MANAGEMENT AREA

species as one moves west into the higher elevation Boreal Uplands. The Boreal Uplands ecoregion is characterized by extensive closed canopy coniferous forests composed of lodgepole pine, spruce (white and black) and sub-alpine fir. Small areas of the Brazeau Range along the western edge of the RMA are within the Subalpine ecoregion which is generally characterized by open coniferous forest and low shrub grassland. The North Saskatchewan River RMA includes portions of the following physiographic units: the Brazeau Plain, Crimson Lake Plain, Shunda Benchland and a small area of Rocky Mountain Foothills.

7.2.2 Resource Management Strategy

The primary intent for resource management in the North Saskatchewan River Resource Management Area is:

> To provide for the utilization of petroleum and natural gas, timber, water-based recreational resources, fisheries, wildlife and forage.

Specific resource management objectives and guidelines were developed for the indicated resource sectors. No priority is intended or implied by the sequence of the following objectives and guidelines.

7.2.2.1 Water and Watershed Resources

Discussion

The major watercourses in this resource management area are the North Saskatchewan River and Shunda, Meadows, Cow, Trout, Lundine, Rough, Buster and Jackfish creeks. Terrain in the eastern half of the RMA exhibits a moderate to high sensitivity as it is developed on slump-prone glacio-lacustrine/fluvial deposits. Deposits in the western half are generally less sensitive as they are developed from coarser glacial tills. Specific areas of concern are slumping along reaches of Buster Creek, numerous erosion problems at stream crossings and slope steepness, particularly in the western half of the RMA. Maintenance of water quality within this RMA is essential because of the high downstream demand for water.

Management Objectives

1. To maintain water quality in the RMA.

Management Guidelines

1. Erosion associated with surface disturbances will be minimized. A greater management emphasis will be placed on erosion control and reclamation.

2. The number of stream crossings associated with linear developments will be minimized.

3. Land use activities in areas of poor drainage and high erodibility will be confined to the winter months wherever possible.

7.2.2.2 Mineral Resources

Discussion

Petroleum is the predominant mineral resource in the RMA. Five designated petroleum and natural gas fields cover half of the area and petroleum and natural gas dispositions cover almost 80 per cent of the RMA. In 1982, approximate production and reserves of petroleum were 400 000 and 12 million m^3, respectively. There are over 300 petroleum wells in this RMA. Natural gas production in 1982 was 230 million m^3 and gas reserves were 7.8 billion m^3. Infrastructure to support the petroleum and natural gas industry is well developed including six gas processing plants within the RMA.

The small part of the Ram River coal field which underlies the RMA contains an estimated 30 million tonnes of low-volatile, bituminous coal reserves. Although most of this coal is suitable for surface mining, the entire field is in Category 2 of the Coal Policy where only limited exploration is permitted and development is restricted to underground or in-situ operations. An underground test mine proposal by Consolidated Coal Ltd. at Ram River has been approved but has been postponed indefinitely. There are eight abandoned coal mines in the vicinity of the Alexo deposit.

Management Objectives

1. To provide opportunities for industry to develop the reserves of the established petroleum and natural gas fields of the RMA and to explore other areas and formations.

2. To provide opportunities for industry to assess and develop the coal reserves of the Ram River Field.

Management Guideline

1. Coal exploration, assessment and development will be conducted in accordance with A Coal Development Policy for Alberta.

7.2.2.3 Timber Resources

Discussion

The resource management area contains all of the R5 Forest Management Unit and portions of the R1 and R01 FMUs. Although there is a considerable AAC of coniferous timber available in the RMA, the majority of the surplus is immature and unsuitable for sawlogs under current utilization standards. The westernmost portion of the RMA is within the Nordegg block of the Brazeau TDA and much of the area north of Rocky Mountain House is within the O'Chiese block. Increased utilization of both coniferous and deciduous timber resources can be expected. A small portion of the RMA falls within the potential agriculture expansion area and has the same concerns as the Rose Creek - Red Deer River RMA.

Management Objectives

1. To provide an optimum long term allowable cut on a sustained yield basis for that portion of the RMA which is within the Green Area.

Management Guidelines

1. Merchantable timber on public lands in the White Area which have been identified for agricultural development, will be allowed to mature before harvesting, wherever possible.
2. Timber harvesting plans will consider areas identified in the planning process as having a high potential for the development of recreation facilities.

7.2.2.4 Wildlife Resources

Discussion

The North Saskatchewan River Resource Management Area provides the widest range of habitat types in the planning area. The main river valley and its tributaries provide critical summer and winter range for elk, moose, deer, most furbearers and numerous species of small mammals and birds. The main stream valleys provide natural travel corridors used by the majority of large game species. Subalpine/alpine areas along the Brazeau Range and Ram Mountain support relatively high populations of bighorn sheep and a small introduced mountain goat population. Competition between escaped and/or abandoned horses and ungulates for range has been identified as a concern in the RMA.

Management Objectives

1. To increase populations to 1200 moose, 200 elk, 1000 mule deer, 30 goat and 15 wolverine.
2. To maintain stable populations of 600 white-tailed deer, 150 bighorn sheep, 50 black bear, 20 cougar, 10 wolves and 300 coyotes.
3. To introduce or enhance river otter populations along the North Saskatchewan River.
4. To protect the colonies of blue herons located near Rocky Mountain House and Cow Lake.
5. To increase non-consumptive use of bighorn sheep in the Nordegg area.
6. To maintain an elk herd in the vicinity of the Nordegg townsite, primarily for non-consumptive enjoyment such as viewing and photography.

Management Guidelines

1. Sheep range on Ram Mountain will be maintained and improved by controlled burning where feasible. Prescribed burning will be done in cooperation with the Alberta Forest Service.
2. The goats transplanted to the Brazeau Range will be encouraged to increase until they are able to provide a sustained hunting yield.
3. Wildlife habitat in the RMA will be enhanced by regulated logging which maintains forest stands of all ages.
4. River otter will be reintroduced if feasibility studies are successful and stock becomes available.
5. Wolves in the eastern portion of the RMA will be removed to minimize depredation of livestock.

6. Elk will be encouraged to increase in the western portion of the RMA, but not in the east where depredation of hay crops would be likely.

7. The heron colony west of Rocky Mountain House will be protected from habitat loss and harassment.

8. Black bear depradation problems will be minimized without reducing sport hunting opportunities or bear populations.

9. Elk and deer depradation problems will be minimized in intensive agricultural areas.

10. Fish and Wildlife Division will review subdivision applications to ensure that detrimental effects on wildlife populations and habitat are minimized.

7.2.2.5 Fisheries Resources

Discussion

The North Saskatchewan River Resource Management Area consists of seven major watershed units (North Saskatchewan River, Trout, Shunda, Rough, Buster, No Name and Deserters creeks). Those watersheds found in the western portion of the RMA have good fisheries potential and contain populations of brook trout, bull trout, brown trout, cutthroat trout, rainbow trout and mountain whitefish. Watersheds to the east are predominantly populated by warm water species such as walleye and northern pike. Spawning, rearing and overwintering is known to occur throughout this system but specific areas, especially in larger rivers (i.e. North Saskatchewan River) have not been identified.

Management Objectives

1. To maintain sufficient flows in the North Saskatchewan River in order to provide adequate fish spawning, rearing and overwintering areas.

2. To protect migratory corridors for specific fish species, in particular the North Saskatchewan River.

3. To protect habitat areas which are critical for specific fish populations:

a) spawning, rearing and overwintering areas for walleye, sauger, northern pike, mountain whitefish, bull trout, brook trout, cutthroat trout, brown trout and rainbow trout in the North Saskatchewan River,

b) spawning and rearing areas for brook trout, brown trout and mountain whitefish in Shunda Creek,

c) spawning and rearing areas for brown trout, bull trout and mountain whitefish in Trout and Lundine creeks,

d) spawning, rearing and overwintering areas for mountain whitefish, brook trout and bull trout in Rough Creek.

4. To stock Cow Creek with brown trout and Cow Lake, Twin Lakes, the Harlech Pond and the Fish and Game Association Pond with rainbow trout in order to maintain or increase recreational angling opportunities.

Management Guidelines

1. Additional fisheries survey work will be done to locate further critical habitats, to determine population sizes and to identify waterbodies with stocking potential. This information is necessary to establish more specific guidelines for protection of fish populations within the RMA.

2. Additional fisheries will be developed to increase angling opportunities and distribute fishing pressure (i.e. stocking of Harlech Pond, Ironside Pond and Cow Lake).

3. The effects of increased discharges from the Bighorn Dam on downstream fish populations in the North Saskatchewan River should be assessed. Negative effects on fish populations of river fluctuations associated with hydro-electric power production should be minimized.

4. The potential impact on Shunda Creek of significant population increases at Nordegg must be recognized. Sewage and water plans for the town must consider the sensitivity and importance of this stream.

7.2.2.6 Recreation and Tourism Resources

Discussion

This resource management area supports a variety of primarily extensive recreation activities. Water-based activities, primarily canoeing, kayaking and jet boating are popular on the North Saskatchewan River, particularly upstream of Rocky Mountain House. Hunting and fishing occur throughout the RMA. Crimson Lake Provincial Park provides a focus for intensive recreation in the area.

The potential for intensive recreation and water based activities is moderate to high west of Rocky Mountain House and moderate to the north. There is a high potential for automobile access or group campground development on pine-covered benchlands bordering the North Saskatchewan River along the western edge of the RMA. Poor access and a lack of demonstrated demand at present precludes the immediate development of these areas.

Access points with walk-in tenting facilities have been developed at Horburg and Saunders to facilitate water-based recreation activities occurring on the North Saskatchewan River. An additional access point is currently being developed at Rocky Mountain House.

Management Objectives

1. To maintain the high quality scenic resources along the North Saskatchewan River and David Thompson Highway corridors.

2. To maintain and provide additional opportunities for water-based recreation (i.e. kayaking, canoeing and jet boating), on the North Saskatchewan River.

3. To maintain and provide a range of outdoor recreation programs in order to meet existing and future demands with emphasis on the North Saskatchewan River and Highway 11 corridors.

4. To manage Crimson Lake Provincial Park in accordance with the principles and intents of the Provincial Parks Act.

Management Guidelines

1. At least one and a maximum of two additional water access points will be provided on the North Saskatchewan River with the development emphasis being placed on the area downstream of Rocky Mountain House due to a lack of facilities on that portion of the river. The Brazeau Forks area has been identified as having potential for this type of development.

2. Dependent upon the survival of the fishery resource, an automobile access campground may be required at Cow Lake in the immediate future.

3. Present automobile access camping facilities will be maintained and upgraded as required. At the present time expansion of existing automobile access facilities or development of new facilities (except possibly at Cow Lake or other water bodies with fish stocking potential such as Ironside Pond) can not be justified solely on the basis of demand. The Jackfish Lake recreation area has the potential for expansion of automobile access camping facilities, if required in the future.

4. Areas that have been identified as having a high potential for recreational development will be considered when assessing future resource extraction applications and proposals.

5. A cross-country ski trail area with a minimum of 15 km of trails and staging facilities will be developed and maintained in the general area of Ferrier to complement existing informal trails.

6. Although the Saunders area has been identified as having potential for development of a group camp, this area will have a lower priority for development.

7. Commercial river rafting operations on the North Saskatchewan River will be limited by the carrying capacity of the river.

8. All geophysical exploration, wellsite and utility corridor activities within Crimson Lake Provincial Park will adhere to conditions specified in the interim "Crimson Lake Provincial Park Land Disposition Guidelines" (Alberta Recreation and Parks, March, 1983).

9. Activities precluded from Crimson Lake Provincial Park include: hunting, off-highway vehicle use, trapping, logging, cultivation, domestic grazing, mineral exploration and development, coal exploration and development, industrial development and residential development. Proposed commercial developments catering to recreation needs will be evaluated separately on their individual merits.

7.2.2.7 Forage Resources

Discussion

Domestic grazing on public lands within the Green Area portion of the North Saskatchewan River Resource Management Area occurs on 22 leases, four licences and five permits with a total established carrying capacity of 5744 AUMs. Use of these dispositions averaged 80 per cent of the carrying capacity between 1976 and 1980. Overutilization problems and demand for additional AUMs are not as pressing as they are in the Rose Creek-Red Deer River RMA. This is substantiated by the lower demand for range improvement projects in the RMA.

The Diamond Hill (840 AUMs), Phoenix Range (420 AUMs) and Rough Creek (400 AUMs) allotments fall within the Green Area portion of the North Saskatchewan River RMA. Use of the Diamond Hill allotment from 1976 to 1980 averaged 72 per cent, while use of the Phoenix allotment averaged 89 per cent. Neither of these allotments has a range management plan. The Rough Creek allotment has a current range management plan.

Very little unallocated land within the Green Area has been identified as having unimproved grazing potential and most of the land base with improved grazing potential is already under disposition.

There are 32 grazing leases and one grazing permit for a total of 33 grazing dispositions within the White Area portion of the RMA. These dispositions are generally full utilized and most are grazed in conjunction with grazing on patent land. Three dispositions had range improvements projects up to 1981.

Management Objectives

1. To maintain the level of natural forage production available for grazing.
2. To sustain the present level of grazing use by domestic livestock and wildlife.
3. To increase the level of improved forage production in areas where potential and demand are present and existing sources of forage have been fully utilized.

Management Guidelines

1. Priority will be placed on development of range management plans for the Phoenix and Diamond Hill allotments. Leases, licences and permits will also require detailed range management plans.
2. The carrying capacity of suitable grazing dispositions will be increased through various government assistance programs as well as the lessee's own means, contingent upon acceptance of an approved range management plan.

7.2.2.8 Ecological Resources

Discussion

Ecological resources are protected in three natural areas and Crimson Lake Provincial Park within the RMA.

Management Objectives

1. To protect indicated ecological resources at the following established locations:

   a) Mill Island Natural Area contains good examples of fluvial processes and associated plant succession. The description of the area is the island in N 1/2 29, and SE 31 and 32 in 40-7-W5M.

   b) Cow Lake Natural Area contains numerous interesting habitat types and has the potential to be used for environmental education. The location of the area is NE 23 (west of lake), 25 (south of road, north of lake), SE 26 (south of road, north of lake), W 1/2 28, S 1/2 29 and SW 33 in 38-8-W5M.

   c) Rocky Mountain House Natural Area contains a variety of upland and wetland habitat types including an area along the North Saskatchewan River and is used for recreational purposes. The description of the area is SE 32 in 39-7-W5M; NW 5 and S 1/2 8 (west of river) in 40-7-W5M.

   d) Crimson Lake Provincial Park contains a variety of ecological resources including Crimson Lake and patterned fens.

Management Guidelines

1. Appropriate land use reservations will be maintained in order to preserve established natural areas.

7.2.3 Zoning for the North Saskatchewan River Resource Management Area

The Eastern Slopes Policy zoning categories were used to locate resource management objectives geographically. The revised Eastern Slopes Policy zoning configuration is indicated on the map in the map pocket (Figure RNS-1). A brief description and rationale for the zoning within the North Saskatchewan River RMA follow:

Critical Wildlife - in the following locations for the indicated reasons:

1. Riparian areas along the North Saskatchewan River, Shunda Creek and associated tributaries to protect ungulate winter range and a migratory corridor for elk, moose and mule deer.
2. Riparian areas along Trout, Lundine, Dizzy and Sunset creeks to protect ungulate winter habitat.
3. Sections of Shunda Creek to protect spawning and rearing areas for trout.
4. SW 25 - Township 39, Range 8, west of 5, and the southern shoreline of Cow Lake to protect blue heron colonies.
5. Upper slopes of the Brazeau Range to protect bighorn sheep and mountain goat populations and habitat.
6. A fluvial-organic-morainal complex in the southwestern portion of Township 39, Range 11, West of 5, to protect elk and moose winter range.
7. Organic areas along Bull Creek to protect moose winter habitat.
8. An area of moraine and organic deposits in Township 39, Range 9, West of 5, to protect winter range for deer and moose.
9. An upland area to the immediate southwest of Cow Lake to protect moose winter range.
10. Slopes of the Brazeau Range near Shunda Creek to protect grizzly bear habitat.

Special Use - established Natural Areas in Townships 39 and 40, Range 7 and Township 38, Range 8, both west of 5, to recognize the unique management requirement of these areas and to allow for protection of ecological resources.

General Recreation - the main area and Twin Lakes portion of Crimson Lake Provincial Park, to provide a focus for outdoor recreation.

Multiple Use - the portions of the RMA which are outside of Critical Wildlife, Special Use, General Recreation, Agriculture, Industrial and Facility zones, to allow for a broad range of resource utilization.

Agriculture - scattered parcels in the east central portion of the RMA to allow improved grazing and cultivation.

Industrial - in the following locations for the indicated reasons:

a) NW 23 - Township 39, Range 8, west of 5, to accommodate an existing gas processing plant, and
b) NW 2 - Township 41, Range 14, west of 5, to accommodate the sawmill at Harlech.

Facility - in the southeast corner of Crimson Lake Provincial Park to accommodate a cottage subdivision, intensive day-use recreational areas, a campground and group camps.

7.3 Prairie Creek Resource Management Area

7.3.1 General Description

The Prairie Creek Resource Management Area is an area of 1090 km^2 in the southern portion of the Rocky-North Saskatchewan Planning Area (see Figure 8). Major water bodies in the RMA are the Clearwater River, Vetch, Swan, Base Line and Prairie creeks and Swan, Strubel and Mitchell lakes. The Prairie Creek RMA includes the Boreal Foothills ecoregion in the eastern portion and the Boreal Uplands ecoregion to the west. There are also small patches of the Subalpine ecoregion along the western edge of the RMA. Forest cover ranges from mixedwood stands dominated by aspen in the east to mainly coniferous forest in the west. The Subalpine ecoregion is generally characterized by low shrub grassland and open coniferous forest. Major physiographic features are the Crimson Lake Plain, Shunda Benchland and the Rocky Mountain Foothills.

7.3.2 Resource Management Strategy

The primary intent for resource management in the Prairie Creek Resource Management Area is:

> To provide for the utilization of petroleum and natural gas, timber, outdoor recreational resources, fisheries, wildlife and forage.

Specific resource management objectives and guidelines were developed for the indicated resource sectors. No priority is intended or implied by the sequence of the following objectives and guidelines.

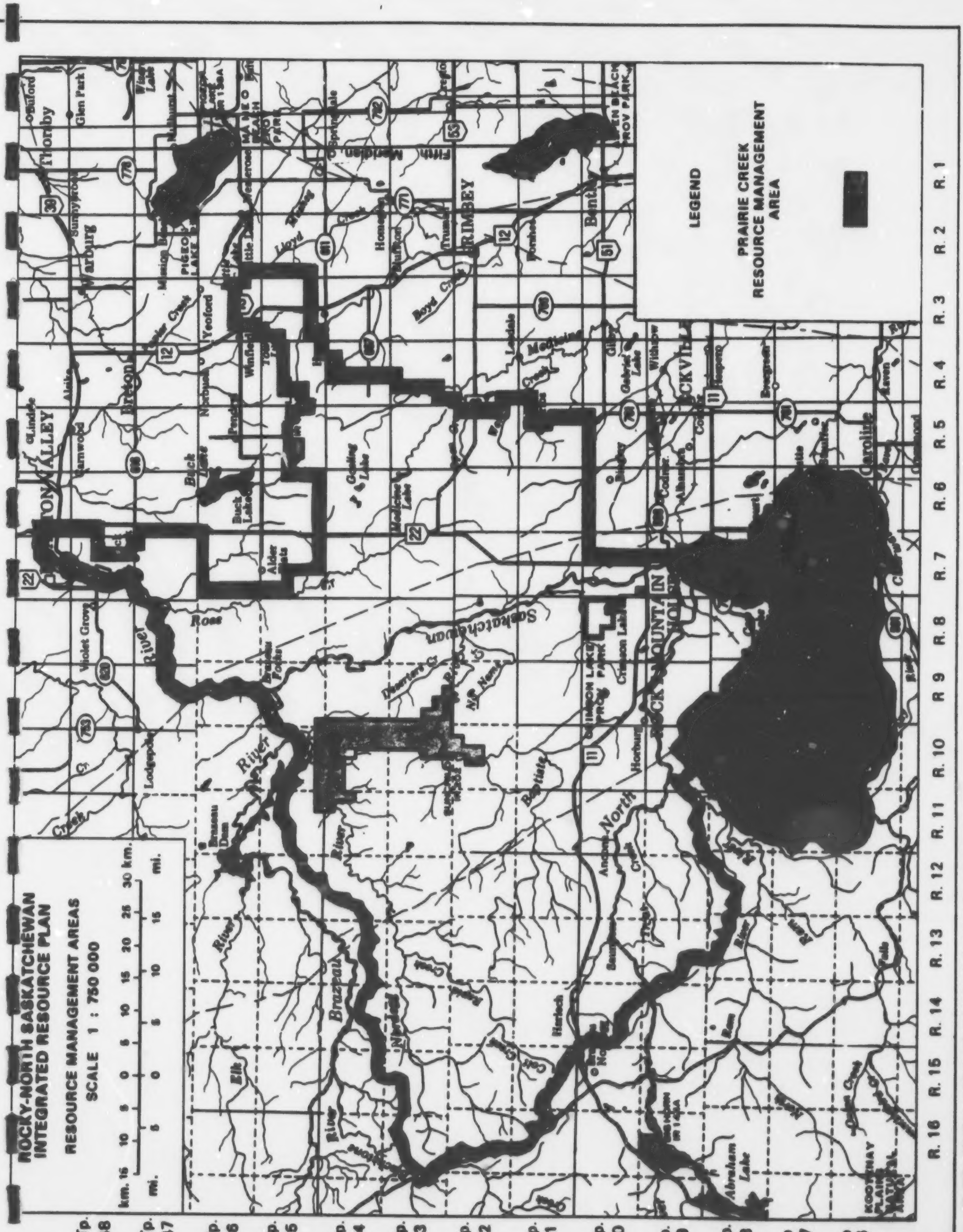

Figure 8 PRAIRIE CREEK RESOURCE MANAGEMENT AREA

7.3.2.1 Water and Watershed Resource

Discussion

The major watercourses are the Clearwater River and Vetch, Baseline, Swan, Dry, Lick, Moosewallow and Prairie creeks. The RMA is characterized by moderate water production and quality and a moderate to high watershed sensitivity. There has been an intensive level of resource development and there are numerous watershed management concerns in the RMA. The amount of land clearing in the Prairie Creek watershed has been identified as a significant concern.

Stream bank instability is a concern throughout the RMA particularly along lower Swan Creek and Moosewallow Creek. These creeks cut through areas with a high clay content and sand deposits which are subject to erosion and channel cutting. Other concerns, such as possible increases in peak flows in the Prairie Creek drainage resulting from clearing, negative impacts from linear developments, stream crossings and other land use activities (i.e. grazing and recreation) are identified throughout the RMA.

Management Objectives

1. To maintain or improve water quality in the RMA.

Management Guidelines

1. More intensive management of land use activities is required to mitigate identified watershed problems. This would include:

    a) restoring bank damage,

    b) utilizing common corridors for linear developments,

    c) an on-going review of vegetation removal to determine the effects of land use activities on water quality and quantity, and

    d) minimizing contact between streams and surface disturbances, such as cattle grazing and recreational use.

2. Better information about the effects of land use and management activities on water quality, quantity and timing will be required.

7.3.2.2 Mineral Resources

Discussion

Most of the natural gas in the planning area is found in this RMA. In 1982, approximate production of gas was 2.2 billion m^3 and gas reserves were 35 billion m^3. Gas is found in seven designated fields within the RMA. Petroleum production and reserves in 1982 were 85 000 and 2 million m^3, respectively. There are portions of five designated petroleum fields in the RMA. Half of the RMA is within petroleum or natural gas fields and 95 per cent of the RMA is under petroleum and natural gas dispositions.

There are eight wells with a hydrogen sulphide content of 5 per cent or higher (one well with more than 30 per cent) and sulphur from the Strachan, Ricinus West and Caroline fields is produced at two gas processing plants in the RMA.

The part of the Ram River coal field which is in the Prairie Creek RMA contains about 12 million tonnes of potentially recoverable metallurgical coal. This coal deposit is in Category 2 of the Coal Policy where exploration is limited and development is restricted to underground or in-situ operations only.

Management Objective

1. To provide opportunities for continued exploration, development and production of petroleum and natural gas resources.

2. To provide opportunities for industry to assess and develop the coal reserves of the Ram River coal field.

Management Guidelines

1. Coal exploration, assessment and development will be conducted in accordance with A Coal Development Policy for Alberta.

2. Coal, petroleum, natural gas and mineral exploration and development will not be permitted in the General Recreation Zone along Prairie Creek.

7.3.2.3 Timber Resources

Discussion

The Prairie Creek RMA contains all of the R7 Forest Management Unit and a portion of the R01 FMU. There are currently six coniferous quotas within the R7 FMU and two Miscellaneous Timber Use areas were set up to meet the considerable demand from local operators for a timber supply. Although there is an available AAC of coniferous timber within the RMA, much of this timber is immature and unsuitable for sawlogs under current utilization standards. The Nordegg block of the Brazeau TDA covers the western half of this RMA and would utilize the available timber if allocated.

Management Objectives

1. To provide an optimum long term AAC on a sustained yield basis for that portion of the RMA which is within the proposed forest land base.

2. To ensure utilization of timber resources on lands which have been identified for agricultural development.

Management Guidelines

1. Merchantable timber on public lands in the White Area will be allowed to mature before liquidation harvesting, wherever possible.

2. Operating plans for timber harvesting in the Prairie Creek corridor will reflect the high recreation and fisheries values of the area.

7.3.2.4 Wildlife Resources

Discussion

Wildlife habitat in the Prairie Creek RMA ranges from aspen-dominated mixedwood stands adjacent to farmland in the east to extensive conifer stands in the west. White-tailed deer, coyotes and upland birds are abundant along the eastern side of the RMA. Moose, elk, black bear and wolves are more common in central and western portions of the RMA. Riparian communities provide key wintering habitat for the majority of major wildlife species in this RMA. Competition between escaped and/or abandoned horses and ungulates for range has been identified as a concern in the RMA.

Management Objectives

1. To increase populations to 500 moose, 50 elk, 400 mule deer and 10 wolverine.

2. To maintain stable populations of 400 white-tailed deer, 20 black bear, 10 cougar, five wolves and 300 coyotes.

Management Guidelines

1. The small population of elk in the Swan Lake - Prairie Creek area will be allowed to increase as long as it does not cause depredation problems.

2. Regulated logging that maintains a mosaic of cover types and ages will be required to meet wildlife objectives.

3. Wolves will be managed to maintain a small population in order to minimize depredation of domestic livestock and ungulate losses.

4. Domestic livestock grazing on Crown land should be managed to prevent overgrazing and minimize negative impacts on upland game birds and ungulates. South Fork-Prairie Creek and Prairie Creek are particular areas of concern.

7.3.2.5 Fisheries Resources

Discussion

The Prairie Creek RMA contains streams and lakes which support some of the highest quality and most productive recreational sport fisheries in the planning area. There are 11 major streams with significant fisheries potential and numerous smaller streams contribute to the diversity of fishing opportunities. Rocky Mountain whitefish, Eastern brook trout and brown trout are the major sport fish in streams in the area. The Clearwater River and Prairie, Swan and Vetch creeks provide excellent stream fisheries for brown trout. Rocky Mountain whitefish are abundant in the Clearwater River and Prairie Creek and support heavy sport fishing. Brook trout are abundant in the headwater areas of most streams.

Major lake fisheries are present in Swan, Struble and Mitchell Lakes. Swan Lake is the most significant since it contains a unique and highly prized population of lake trout. Swan Lake is also popular for northern pike and brown trout fishing. Struble Lake provides a popular fishery for stocked rainbow trout and Mitchell Lake supports a brook trout fishery.

Land use activities, primarily grazing and petroleum and natural gas development, have had serious impacts on fish habitat in many streams through bank breakdown, increased erosion and siltation, removal of riparian vegetation and degradation of water quality. Prairie, Vetch and Swan creeks have been damaged by domestic stock activities and numerous road and pipeline crossings. A serious access problem has developed in the eastern portion of the RMA, where land owners and lessees of Crown land have denied fishermen access to prime fishing areas.

Management Objectives

1. To maintain and where possible, enhance, naturally reproducing gamefish populations in:

    a) Prairie Creek and tributaries - 300 to 800 fish/km,
    b) Swan Creek - 500 fish/km, and
    c) Clearwater River - 1000 fish/km.

2. To maintain the following habitat areas and migratory routes which are critical for specific fish populations:

    a) spawning areas for lake trout in Swan Lake,

    b) spawning, rearing and overwintering areas for Rocky Mountain whitefish, brook and brown trout in Swan and Lick creeks and the Clearwater River, and

    c) spawning and rearing areas for Rocky Mountain whitefish and brook trout in Moosewallow, Baseline, Vetch, Prairie, Skunk and Cold creeks and associated unnamed tributaries.

3. To maintain the following waterbodies with fish stocking potential in order to provide additional recreational angling:

    a) Struble Lake - 20 000 rainbow trout,
    b) Mitchell Lake - 20 000 brook trout,
    c) Rat Lake - 5000 brook trout, and
    d) Mud Creek beaverdams - 10 000 brown trout.

Management Guidelines

1. Agricultural activities should be minimized in areas which are adjacent to creeks.

2. All development activities, which have the potential to damage aquatic habitat, must recognize and account for the extremely important and sensitive fisheries resources in this RMA.

3. Additional fisheries survey work is required to refine the location of critical habitat and determine population sizes.

This information is necessary to establish more specific guidelines for management and protection of fish populations in the RMA.

4. Detailed fisheries management plans should be developed for key lakes (Swan, Struble, Mitchell and Rat) and streams in the RMA.
5. Random use of off-highway vehicles within the area must be controlled to prevent damage to fish habitat.
6. Improved livestock management is required on leased Crown and private lands which border watercourses in order to alleviate the existing problem of cattle damaging stream habitat.
7. Ecological Corridor Agreements will continue to be a condition of sale for any Crown land which borders or includes streams to ensure watercourse protection and the retention of adequate buffers.
8. In certain areas (Prairie and Swan creeks) Buck for Wildlife fencing projects may be undertaken to rectify particularly serious damage to fish habitat. Further stream inventories will be undertaken to identify other priority sites for fencing.
9. A high level of watershed protection will be required in the Swan Lake drainage to ensure survival of the sensitive and unique lake trout population.
10. Access for recreational angling on the Clearwater River will be improved.

7.3.2.6 Recreational and Tourism Resources

Discussion

The Prairie Creek RMA supports a high level of year-round recreational use including hunting, fishing, camping (including a high level of random camping), off-highway vehicle use, snowmobiling and cross-country skiing. Use of recreational facilities is generally light on weekdays and to capacity on weekends with most of the use associated with fishing and off-highway vehicle activities.

The potential for further facility development in the heavily utilized Prairie Creek and South Fork - Prairie Creek valleys is limited. Swan Lake is also heavily utilized and has a low potential for expansion of existing recreation facilities.

The Baseline Creek area is popular for both snowmobiling, cross-country skiing and off-highway vehicle use and has a high potential for motorized trail development.

Management Objectives

1. To maintain and provide a broad range of outdoor recreation programs in order to meet existing and future demands with emphasis in the Prairie Creek valley.

2. To provide trails and staging areas to accommodate motorized and non-motorized traversing activities with emphasis in the Rocky Mountain Forest Reserve.

Management Guidelines

1. Maintenance and upgrading of existing automobile access facilities will proceed as required.

2. Expansion of existing automobile access facilities or development of additional facilities is not justified by demand at this time. Recreational use and demand will be monitored in order to identify the need for future facility development.

3. Trail and staging area development for off-highway vehicle and snowmobile use and non-motorized trail development (specifically cross-country skiing) will be undertaken in the Baseline area. This area is the highest priority in the Rocky-Clearwater Forest for development of another snowmobile trail area.

4. Residential subdivisions will not be permitted in the General Recreation Zone along Prairie Creek.

7.3.2.7 Forage Resources

Discussion

At present there are 20 leases, two permits and one licence within the Green Area portion of the Prairie Creek RMA with a total established carrying capacity of 3012 AUMs. Although in an average year only 75 per cent of the available AUMs are utilized, stock returns indicate that between 1976 and 1980 11 of these dispositions were consistently overutilized. Management and distribution problems are therefore occurring. There have been three range improvement projects on the dispositions in the last two years.

The Prairie Creek Range Allotment (277 AUMs) and South Fork Prairie Creek Head Tax Permit (609 AUMs) also fall within the Green Area portion of the RMA. In an average year 94 per cent of the available AUMs in the Prairie Creek allotment are utilized. Channel and bank damage and overutilization adjacent to the creek have been identified as concerns in this allotment. These problems are largely due to poor distribution of livestock. Use of the South Fork Head Tax Permit averaged 196 per cent of the rated carrying capacity from 1976-1980. Overutilization has been identified as a concern in this permit. The latest range management plan for the Prairie Creek allotment is dated 1961 while a range management plan has never been developed for the South Fork Prairie Creek Head Tax Permit.

There are 27 grazing leases and one grazing permit for a total of 28 grazing dispositions within the White Area portion of the Prairie Creek RMA. One of the dispositions had range improvement up to 1981. These dispositions are generally fully utilized and most are grazed in conjunction with grazing on patent land.

Management Objectives

1. To increase the level of improved forage production where potential and demand exist after available sources of forage have been fully utilized.

2. To ensure that use of grazing dispositions in this RMA does not exceed established carrying capacities.

Management Guidelines

1. A review of all grazing dispositions is required. The priority for development of management plans in the Green Area will be placed on the Prairie Creek allotment and South Fork Prairie Creek Head Tax Permit and then on those leases, licences and permits with overutilization and distribution problems.

2. The carrying capacity of suitable grazing dispositions will be increased through various government assistance programs as well as the lessee's own means, contingent upon acceptance of an approved range management plan.

7.3.2.8 Ecological Resources

Discussion

Ecological resources are protected in two natural areas in the Prairie Creek RMA.

Management Objectives

1. To protect ecological resources at the following established locations:

   a) Caroline Natural Area contains a diversity of fluvial features and vegetation. The area is also useful for recreational purposes. The location of the natural area is NW 33 (north of river) in 36-6-W5M.

   b) Chedderville Natural Area contains a diversity of vegetational and geomorphological features in floodplain and upland areas. The area is also used for recreational purposes. The natural area is located in NW 11 (southeast of river and island), NW 14 (both sides of river and island), SW 14 (east of river and island), W 1/2 23 (both sides of river and island) and N 1/2 28 in 37-6-W5M.

Management Guidelines

1. Appropriate land use reservations will be maintained in order to preserve established natural areas.

7.3.3 Zoning for the Prairie Creek Resource Management Area

The Eastern Slopes Policy zoning categories were used to locate resource management objectives geographically. The revised Eastern Slopes Policy zoning configuration is indicated on the map in the map pocket (Figure RNS-1).

A brief description and rationale for the zoning within the Prairie Creek Resource Management Area follow.

Critical Wildlife - in the following locations for the indicated reasons:

1. Riparian areas along selected reaches of Prairie, Baseline, Swan, Vetch, North Prairie and South Prairie creeks to protect winter range for moose, elk and deer.

2. Riparian areas along Prairie Creek to protect trout populations.

3. Small areas of mixed hummocky moraine and glaciofluvial organic deposits in Township 36, Ranges 7 and 8, west of 5, to protect winter range for moose and deer.

4. Area around Swan Lake to protect a resident lake trout population.

5. Mitchell and Struble Lakes to protect trout populations.

Special Use - established Natural Areas in Townships 36 and 37, Range 6, west of 5, to recognize the unique management requirements of these areas and allow for protection of ecological resources.

General Recreation - in the following locations for the indicated reasons:

a) the D-reservation on the north shore of Swan Lake to accommodate the existing campground, and

b) along Prairie Creek within the Forest Reserve to accommodate outdoor recreation facilities including a group camp, a campground and interpretive hiking trails.

Multiple Use - the portions of the RMA which are outside of Critical Wildlife, Special Use, General Recreation, Agriculture and Industrial zones to allow for a broad range of resource utilization.

Agriculture - a few scattered parcels in the eastern portion of the RMA to allow improved grazing or cultivation.

Industrial - in the following locations for the indicated reasons:

a) NW 35 - Township 37, Range 9, west of 5, to accommodate Gulf's Strachan gas processing plant, and

b) S 1/2 2 and LSD 3 of 3 in Township 37, Range 10, and NE 35 in Township 36, Range 10, all west of 5, to accommodate Canterra's gas processing plant.

7.4 Nordegg - Baptiste Resource Management Area

7.4.1 General Description

The Nordegg-Baptiste Resource Management Area is an area of 2550 km^2 in the northwestern sector of the Rocky-North Saskatchewan Planning Area (see Figure 9). The main water bodies found within this area are the Baptiste and Nordegg rivers, Colt, Swale, Deserters,

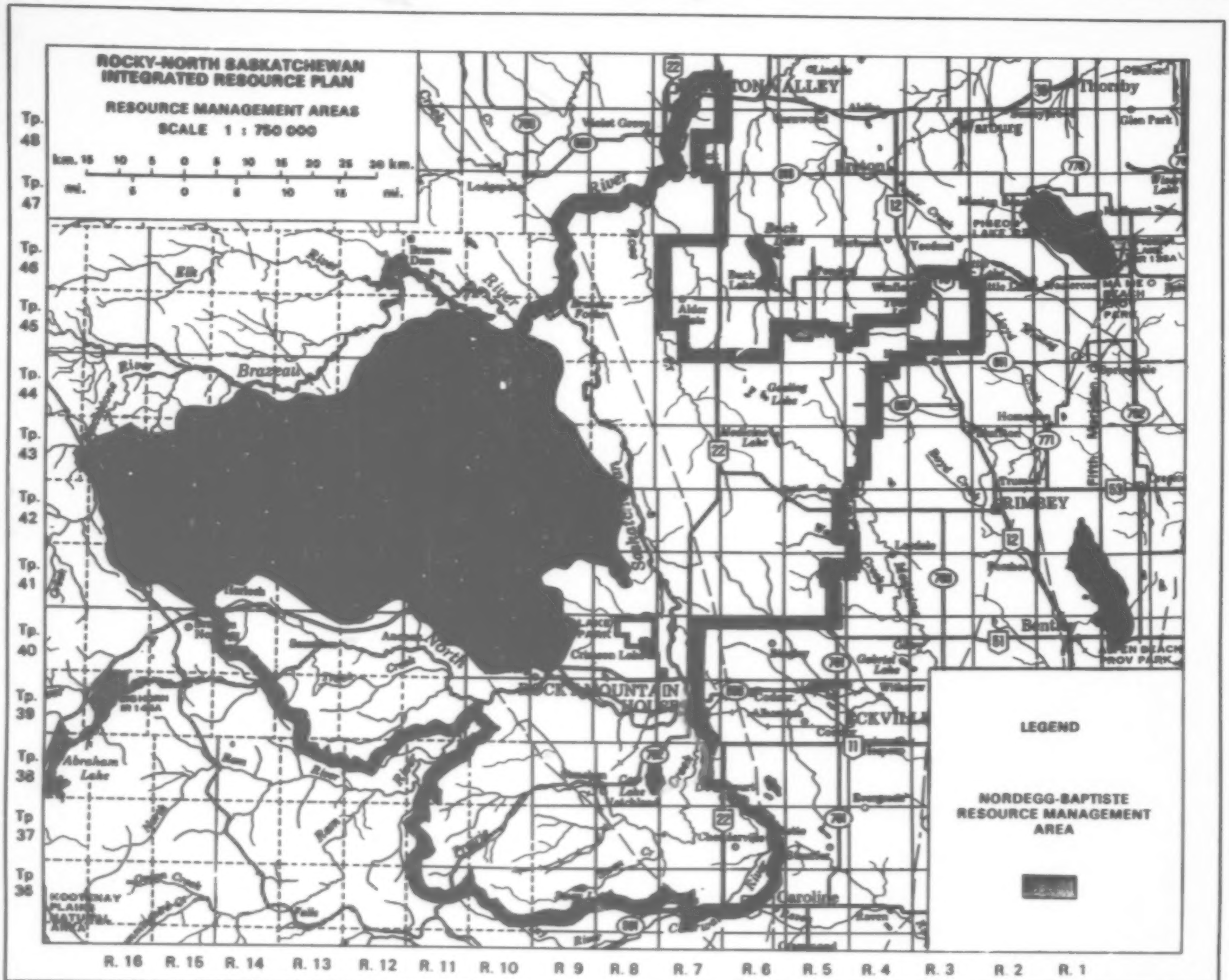

Figure [illegible] NORDEGG-BAPTISTE RESOURCE MANAGEMENT AREA

Chambers and Brewster creeks and Jackfish and McGregor lakes. The Nordegg-Baptiste RMA includes the Boreal Foothills ecoregion in the east and the Boreal Uplands ecoregion in the west with small areas of the Subalpine ecoregion along the western boundary. Forest cover changes from mixedwood with aspen dominating to coniferous forest with lodgepole pine dominating as one moves west. The Subalpine ecoregion is characterized by low shrub grassland and open coniferous forest. Major physiographic features are the O'Chiese Upland, the Shunda Benchland and the Rocky Mountain Foothills.

7.4.2 Resource Management Strategy

The primary intent for resource management in the Nordegg-Baptiste Resource Management Area is:

> To provide for the utilization of petroleum and natural gas, timber, extensive recreational resources, fisheries and wildlife.

Specific resource management objectives and guidelines were developed for the indicated resource sectors. No priority is intended or implied by the sequence of the following objectives and guidelines.

7.4.2.1 Water and Watershed Resources

Discussion

The major watercourses in this RMA are the Nordegg and Baptiste rivers and the following creeks: Colt, Swale, Deserters, Chambers, Wawa, Stevens, Rapid, Grey Owl, Brewster, Grace and Lawrence. The RMA produces moderate to high quantities of water and exhibits an overall moderate-high watershed sensitivity. Previous linear developments and stream crossings/contacts have resulted in water quality deterioration and erosion. Wawa Creek and the upper Nordegg and Baptiste rivers experience periodic high peak flows, and potential peak flow increases resulting from land clearing have been identified as a concern. There are areas of intensive timber harvesting and oil and gas exploration and development, and the level of future resource development is expected to increase.

Management Objectives

1. To minimize increases in peak flow levels resulting from vegetation removal.

2. To maintain water quality in the RMA.

Management Guidelines

1. Resource development activities will utilize existing access and common corridors wherever possible.

2. More intensive management, upgrading and restoration of existing linear developments is required.

3. The number and type of stream crossing and contacts will be controlled.

4. Industrial access should be limited to the winter months in areas of poor drainage, when possible.

5. Better information about the effects of land use and management activities on water quality, quantity and timing will be required.

7.4.2.2 Mineral Resources

Discussion

Three designated natural gas fields are entirely within the Nordegg-Baptiste RMA and portions of five others extend into the area. Petroleum production in 1982 was 100 000 m^3 and reserves were 2.2 million m^3. Natural gas production during the same year was 600 million m^3 and reserves were 30 billion m^3. Three-quarters of the RMA is under petroleum or natural gas dispositions. The oil and gas industry is very active in this RMA and an extensive infrastructure, including two gas processing plants, has been developed.

Five wells in the RMA have hydrogen sulphide contents of 5 per cent or more, while one gas processing plant produces elemental sulphur from the Brazeau River field.

Coal reserves have been identified in the Alexo and Shunda Creek coal deposits and in the Nordegg coal field, which extends into the RMA. The Alexo and Shunda deposits have combined reserves of 9 million tonnes of thermal coal and the Nordegg field has approximate reserves of 8.5 million tonnes of potential metallurgical coal within the RMA. An abandoned coal mine at the Alexo deposit is located within the RMA. All coal reserves are within Category 2 of the Coal Policy where exploration is limited and development is restricted to underground or in-situ operations.

Management Objectives

1. To provide opportunities for industry to continue development and production of petroleum and natural gas from the seven fields in this RMA.

2. To provide opportunities for the exploration and discovery of new reserves of petroleum and natural gas.

Management Guidelines

1. No specific management guidelines were identified for mineral resources.

7.4.2.3 Timber Resources

Discussion

The Nordegg-Baptiste RMA encompasses all of the R2 Forest Management Unit. At present there are two coniferous quotas within the RMA. There is an available AAC of coniferous timber within the area of which over half is immature. The remainder of the timber supply is divided fairly evenly between mature and overmature. There are no Deciduous Timber Allocations at present. The eastern half of the Nordegg-Baptiste River RMA falls within the O'Chiese block of the Brazeau TDA and the west half within the Nordegg block. The Timber Development Area, if fully allocated, would utilize much of the deciduous and coniferous timber in this RMA.

Management Objectives

1. To increase utilization of deciduous and coniferous timber resources on a sustained yield basis.

Management Guideline

1. No management guidelines have been identified that are specific to this RMA.

7.4.2.4 Wildlife Resources

Discussion

The Nordegg-Baptiste RMA provides a large relatively uniform block of conifer-dominated boreal forest habitat. Wildlife is distributed throughout the unit, but key areas for major species tend to be located along watercourses where the greatest topographic and habitat diversity occurs. Moose, deer, black bear, wolves and coyotes are common along most of the larger drainages. Elk are most common along the Nordegg River and in the western portion of the RMA along the Brazeau Range and north and west of Harlech. Subalpine habitat located in the extreme western portion of the RMA on Shunda and Coliseum mountains supports use by bighorn sheep and mountain goats. Competition between escaped and/or abandoned horses and ungulates for range has been identified as a concern in the RMA.

Management Objectives

1. To increase populations to 1500 moose, 200 elk, 500 mule deer, five goats and 15 wolverine.
2. To maintain stable populations of 300 white-tailed deer, 20 sheep, 100 black bear, 15 cougar, 10 wolves and 300 coyotes.
3. To increase sport hunting of black bears and upland game birds.

Management Guidelines

1. Wildlife populations in this RMA will benefit from a well-regulated logging program that maintains a mixture of all age class stands.
2. Random use of motorized vehicles will be regulated in order to minimize wildlife harassment.
3. The presence of two Indian Reserves makes it imperative that sport hunting be regulated to provide adequate wildlife for hunting by Treaty Indians.
4. The elk population will be increased by providing more suitable habitat as logging proceeds and by regulating wolves at low densities.

7.4.2.5 Fisheries Resources

Discussion

The Nordegg-Baptiste RMA contains two major watershed units. The Nordegg and Baptiste river watersheds support diverse game fish populations, including eastern brook trout, mountain whitefish and bull trout. Walleye and northern pike are also present but are confined to the lower reaches of these systems.

Existing and proposed timber harvesting operations and the possibility of increased petroleum exploration justify concerns for watershed protection. Past construction activities in the upper reaches of these systems have increased silt loads and destroyed fish habitat. Seismic lines have also resulted in deterioration of specific sites through erosion and siltation.

Management Objectives

1. To maintain and protect the following habitat areas which are critical for specific fish populations:

    a) spawning, overwintering and rearing areas for bull trout and mountain whitefish on the upper Nordegg River; Wawa, Rapid and Grey Owl creeks and unnamed tributaries to the Nordegg River at NE 29, Township 42, Range 15; NW 19, Township 42, Range 15; NE 13, Township 42, Range 16; SE 12, Township 42, Range 16, all west of 5.

    b) spawning and rearing areas for bull trout, brook trout and mountain whitefish in Colt and Swale creeks;

    c) spawning and rearing areas for walleye and northern pike in the lower Nordegg River;

    d) spawning and rearing areas for bull trout and brook trout in the upper Baptiste drainage; and

    e) spawning, rearing and overwintering areas for brook trout in Chambers, Lawrence; Jackfish, Ruth and Holbrook creeks as well as in the majority of headwater tributary streams.

2. To maintain and/or increase recreational fishing opportunities by stocking brook trout into Grey Owl, Rapid and Stevens creeks.

3. To maintain or enhance the fisheries production potential of McGregor, Doctors and Jackfish lakes.

Management Guidelines

1. Problems with stream habitat deterioration resulting from petroleum and natural gas development, logging and recreational use should be corrected.

2. Detailed management plans for key lakes (McGregor, Jackfish and Doctors) and streams in the RMA must be completed.

3. Additional fisheries will be developed to increase angling opportunities and distribute fishing pressure (proposed stocking of walleye into McGregor and Jackfish lakes).

4. Existing and proposed timber harvesting operations and the possibility of increased petroleum exploration dictate that watershed protection must be carefully maintained in the RMA.

5. Fish and Wildlife Division and the Alberta Forest Service should undertake a co-operative program to identify and reclaim access roads which are contributing to erosion and sedimentation problems in the RMA.

6. Domestic stock grazing has had negative impacts on a number of streams in the RMA. Improved livestock management should be encouraged on leased Crown land and private lands bordering watercourses to alleviate the problem.

7.4.2.6 Recreational Resources

Discussion

The RMA currently supports a moderate level of outdoor recreational use and has generally good potential for both intensive and extensive forms of recreation. Current use includes hunting, fishing, camping (at both established facilities and random sites) and snowmobiling. A formal snowmobile trail system with associated support facilities and staging area has been developed at the Chambers Creek Recreation Area.

Areas along the Baptiste River, which are currently inaccessible, have been identified as having a high potential for the future development of auto-access facilities. A moderate to high potential exists in the Baptiste River valley east of McGregor Lake for extensive winter activities such as cross-country skiing and snowmobiling.

No major increases in demand and recreational use of the RMA are anticipated until upgrading of the Sunchild road is completed.

Management Objectives

1. To maintain and provide opportunities for extensive dispersed forms of outdoor recreation, in particular winter and summer mechanized trail programs.

2. To maintain and provide opportunities for intensive recreational use, including auto-access campgrounds and water access points.

3. To maintain high quality scenic resources along the Forestry Trunk Road.

Management Guidelines

1. As access is developed and upgraded (i.e. Sunchild road) further facility development will be required in this RMA, particularly in association with the numerous pothole lakes unique to this area of the Rocky Clearwater Forest and at river crossings (i.e. McGregor and Doctors lakes, Nordegg and Baptiste rivers, etc.). Expansion of existing automobile access facilities or development of new facilities is not justified by demand due to limited access at this time. Maintenance and upgrading of existing automobile access facilities will proceed as required.

2. Expansion of the existing snowmobile trail system at Chambers Creek and/or development of a complementary trail system in the general area of McGregor Lake are possibilities but are considered a lower priority than a similar development to be undertaken in the Prairie Creek RMA. Although the McGregor Lake area has also been identified as having potential for development of an off-highway vehicle trail system, development in this area will have a lower priority than the Baseline area in the Prairie Creek RMA.

3. The feasibility of providing commercial tourism facilities and services along the Forestry Trunk Road will be determined.

7.4.2.7 Forage Resources

Discussion

At present there are four grazing leases and one permit with a combined carrying capcity of 977 AUMs within the RMA. Use of these grazing dispositions average 76 per cent with none reporting overutilization. The Omni Head Tax Permit (412 AUMs) and Holbrook Range Allotment (366 AUMs) fall within the RMA and use has averaged 57 per cent on the Omni Permit and 91 per cent on the Holbrook Range Allotment. Neither of these dispositions has a range management plan. There have been no range improvement projects in this RMA and little unallocated area has been identified with unimproved or improved grazing potential.

Management Objectives

1. To provide for continued grazing of forage resources by domestic livestock and ungulates.

Management Guidelines

1. The Omni Range Head Tax Permit and Holbrook Range Allotment require range management plans. The priority will be placed on the Holbrook Allotment because of current management problems such as poor distribution and overutilization.

7.4.2.8 Ecological Resources

Discussion

Ecological resources in the RMA would be protected in the ecologically significant area which has been identified near McGregor Lake. This area contains an escarpment with several Cordilleran plant species. This type of vegetation is uncommon in the Main Foothills Region and some species are present only sporadically in Alberta.

An ecologically significant area has also been identified in an area adjacent to the O'Chiese Indian Reserve. The area is representative of the forested upland terrain of the eastern footlands. Vegetation consists of mixedwood forest dominated by deciduous species and small areas of wetland.

Management Objective

1. To protect ecological resources at the following locations:

   a) McGregor Lake - (North) - N 25, N 26, NE 27, SE 34, S 35 and 36 in 42-13-W5M and 30 (north of road), LSD 1-3, 5-8, 11-14 of 31 in 42-12-W5M.

   b) O'Chiese - N3, N4, 9, 10, 15, 16, - 44 - 10 - W5M.

Management Guideline

1. Appropriate land use reservations will be placed on the ecologically significant areas to protect ecological resources.

7.4.3 Zoning for the Nordegg-Baptiste Resource Management Area

The Eastern Slopes Policy zoning categories were used to locate resource management objectives geographically. The revised Eastern Slopes Policy zoning configuration is indicated on the map in the map pocket (Figure RNS-1). A brief description and rationale for the zoning within the Nordegg-Baptiste Resource Management Area follow:

Critical Wildlife - in the following locations for the indicated reasons:

1. Riparian and organic areas along Deserters, Colt Wawa, Grey Owl, Lawrence and Brewster creeks, an unnamed creek in Townships 43 and 44, Ranges 11 and 12, west of 5, a tributary to the Baptiste River in Township 41, Ranges 12 and 13 and the Baptiste and Nordegg rivers, to protect winter habitat for moose, elk and deer.

2. Areas of organic and morainal deposits in Township 40, Range 10, west of 5, to protect winter range for moose, elk and deer.

3. Area of morainal deposit between the Sunchild Road and the O'Chiese Indian Reserve to protect winter range for elk and moose.

Special Use - the O'Chiese Indian Reserve 203 and the Sunchild Indian Reserve 202 to recognize the unique legislative status of these lands.

Multiple Use - the portions of the RMA which are outside of Critical Wildlife, Special Use, and Industrial zones to allow for a broad range of resource utilization.

Industrial - in SW 10, Township 44, Range 12, west of 5, to accommodate the existing large capacity gas processing plant.

8. PLAN IMPLEMENTATION, MONITORING AND AMENDMENT

General procedures and mechanisms for the implementation, monitoring and amendment of the Rocky-North Saskatchewan Integrated Resource Plan are outlined in this section. A statement of program and project implications and associated benefits and costs associated with taking direction from the plan will be contained in a supplemental document titled Rocky-North Saskatchewan Integrated Resource Plan: Implementation.

General Implementation

The Rocky-North Saskatchewan Integrated Resource Plan will be implemented within the existing government framework of legislation, agency responsibilities, policies and administrative mechanisms. The plan will be considered to be implemented when it is providing direction for government resource management activities and public resource use within the planning area. The direction provided in the plan for government resource management activities will be translated into existing, new or modified resource management programs, projects, operational plans and administrative procedures such as referral systems. The plan direction for public resource use activities within the planning area will eventually be translated into normal control mechanisms such as permits, licences and leases.

Government resource management agencies that are participating in the implementation of the Rocky-North Saskatchewan Integrated Resource Plan will have several responsibilities to ensure the effective delivery of the plan. Agencies must ensure that their resource management activities are consistent with the direction contained in the plan. Each agency must also ensure that public use of those resources, which the agency is responsible for, occurs in a manner which is consistent with the plan.

The agencies must also deal with any conflicts or concerns which arise with respect to implementation or interpretation of any provisions of the plan. These responsibilities are outlined by subject area below:

Referral System: Participating government management agencies will ensure that existing referral systems of the Alberta government (e.g., Internal Referral Systems of Alberta Energy and Natural Resources) are comprehensive and encompass all affected or concerned agencies within the planning area.

Plan Monitoring: The Rocky-North Saskatchewan Integrated Resource Plan will be reviewed annually by the Eastern Slopes Regional Resource Management Committee to ensure:

- an assessment of the relevancy of the specified resource management objectives in light of changing conditions and new information;
- an assessment of resource management guidelines;
- an assessment of agency operational plans to ensure their consistency with the intents, objectives and guidelines contained in the Rocky-North Saskatchewan Plan;
- preparation of a statement recommending amendments to the Rocky-North Saskatchewan Integrated Resource Plan and future actions required to maintain or promote government resource management activities in the planning area.

An annual report will document changes in the plan. The report will also highlight the previous year's activity in the planning area, including the number, type and location of referrals and what conflicts or concerns were addressed and resolved. The report will also indicate what might be expected to be accomplished in the planning area during the next year. The report may be deferred if a lack of activity or progress toward government resource management objectives within the planning area is identified.

A major plan review by the Eastern Slopes Regional Resource Management Committee will occur at five-year intervals to facilitate:

- a comprehensive assessment of all aspects of the plan, including but not limited to broad resource management objectives, zoning, activity/zone matrix and resource management area boundaries and intents,
- a public review with the public involved in the same manner as it was during development of the plan, and

- preparation of a statement recommending amendments to the plan and future actions required to maintain or promote government resource management activities in the planning area.

A five-year report will document all amendments. Major plan reviews may be undertaken more frequently than every five years if required by major resource policy commitments or developments of program initiatives.

Amendment Procedures: Changes to the broad planning area resource management objectives, zoning, activity/zone matrix and the resource management area boundaries and intents will require major amendment to the Rocky-North Saskatchewan Integrated Resource Plan. An amendment to the plan may be required as a result of an annual review, major five-year review, government request or as a result of a request from an individual, group or organization outside the government. Proposed amendments to the Rocky-North Saskatchewan Integrated Resource Plan from outside the government should be made by formal application to the Assistant Deputy Minister of the Resource Evaluation and Planning Division, Alberta Energy and Natural Resources. Opportunities for public review of proposed amendments to the Rocky-North Saskatchewan Integrated Resource Plan will be provided before changes are approved by the government. Cabinet approval must be obtained for major amendments.

9. IMPLICATIONS

Implications are major components of the plan and associated factors which should be considered by decision makers who are responsible for approval of the plan. Implications can be positive or negative depending upon the perspective of the individual or organization. The following categories of implications were identified:

a) general implications of the plan
b) major implications of resource management decisions

Implications are discussed in the above categories.

9.1 General Implications of the Plan

Since the Rocky-North Saskatchewan Plan is an integrated resource plan, there are a large number of implications associated with the government commitment to integrated resource management and planning. Although not discussed in detail in the plan, decision makers should be aware of these implications when reviewing the plan. The following discussion of implications relates specifically to the content of the Rocky-North Saskatchewan Integrated Resource Plan.

The Rocky-North Saskatchewan Integrated Resource Plan addresses a broad spectrum of resources including water, watershed, minerals, timber resources, wildlife, fisheries, recreational resources, forage, agricultural resources, ecological resources, historical resources, tourism and surface materials as well as access considerations. The plan contains positive, future oriented, resource management objectives for each of the above resource sectors. Achievement of stated resource management objectives will provide a wide range of social and economic benefits. Objectives are stated at the planning area level and for specific resource management areas. A refined Eastern Slopes Policy zoning configuration is presented on a map in the plan to further contribute to the geographic location of resource management objectives. The plan also contains guidelines for resource management actions which are intended to achieve stated resource management objectives. Resource management guidelines are defined for the planning area and resource management areas.

During development of the plan, the planning team gathered and evaluated a wide variety of resource information. A selection of this resource information is presented in the plan. When information deficiencies were identified, the team gathered the necessary information immediately or included provisions in the plan for future collection of such information.

The plan contains integrated resource management direction which provides for a full range of benefits from a variety of resources with minimum costs. The resource management direction in the plan will be useful to field-level resource managers in day-to-day decision-making, including operational planning.

In order to develop integrated direction, the planning team evaluated potential interactions between resource management objectives and actions. Provisions for beneficial interactions were included in the plan while negative interactions (i.e. conflicts) were eliminated by modification of resource management objectives or by development of appropriate resource management guidelines. Conflicts which were identified in the Terms of Reference (see Section 5) and during development of the plan, were resolved by the planning team. Conflicts which could not be resolved at the planning team level were forwarded to the appropriate government decision-making level for resolution and the subsequent direction was incorporated into the plan. The plan also contains provisions for integrated resolution of resource management conflicts which may be identified in the future.

Commitment to the Rocky-North Saskatchewan Integrated Resource Plan will require allocation of manpower and funds to appropriate agencies. The allocation of manpower and funds to the involved agencies will be discussed in the plan implementation document.

9.2 Major Implications of Resource Management Decisions

The following major implications of resource management decisions were identified:

1. The Eastern Slopes Policy zoning categories were used to geographically locate resource management objectives throughout the planning area, including the area which is outside the Eastern Slopes Policy boundary. The refined Eastern Slopes Policy zoning in the planning area is based on more detailed information than the 1977 reginal zoning. Patent land is not zoned. The following refinements of the zoning occurred:

a) Prime Protection - There was no Prime Protection zoning in the planning area in 1977 and none is recommended in the plan.

b) Critical Wildlife - The amount of Critical Wildlife zoning in the planning area was increased to provide protection and long term security for wildlife populations and habitat. The location of Critical Wildlife zoning was refined to cover mainly organic and riparian habitat areas which are important to a variety of wildlife species. A small amount of Critical Wildlife zoning was applied to protect fisheries populations and aquatic habitat.

c) Special Use - The O'Chiese and Sunchild Indian Reserves were the only areas of Special Use in the regional zoning and the same zoning for the reserves is maintained in the plan. Special Use zoning was added to recognize the unique management status and allow for protection of ecological resources in several small established natural areas, which are scattered along the eastern edge of the planning area.

d) General Recreation - The General Recreation zone along Prairie Creek was reduced to a size which will accommodate existing and potential recreational developments. Much of the original General Recreation zoning at this location was on patent land. The General Recreation zone surrounding Swan Lake was reduced to a small area around a campground on the north side of the lake. The General Recreation zone in the area immediately east of Crimson Lake Provincial Park was removed because recreational capability is low, other land uses occur in the area and there are no proposals for recreational use of this area. The General Recreation zone on the Open Creek Reservoir was removed because recreational development at this location was minimal and capability is limited. General Recreation zoning on the northern block and Twin Lakes portions of Crimson Lake Provincial Park was maintained. A small General Recreation zone was added on Medicine Lake to accommodate existing and expected recreational development.

e) Multiple Use - Although the total amount of Multiple Use zoning was reduced, the proposed Multiple Use zone covers the majority of the planning area and provides for the management and use of a full range of available resources.

f) Agriculture - Agriculture zoning was added to a large block of land in the Rose Creek area and to numerous smaller scattered parcels along the eastern edge of the planning area. Agriculture zoning will allow for improved grazing and cultivation on new agricultural land and will also facilitate development of additional grazing capacity through range improvement on existing grazing dispositions.

g) Industrial - Small Industrial zones were maintained or added to recognize several large gas processing plants and were removed from a number of smaller gas processing facilities, such as dehydrators. An Industrial zone was maintained on the site of the sawmill at Harlech.

h) Facility - Facility zoning was maintained in the area around Crimson Lake in Crimson Lake Provincial Park to provide for intensive recreational developments including a cottage subdivision. Facility zones were removed from Jackfish, Mitchell and Medicine Lakes because such zoning was not appropriate for the level of recreational development at these sites.

2. Approximately 40 900 hectares (101 000 acres) of land will be transferred from the Green Area to the White Area. About 37 000 hectares (91 400 acres) of this total are Crown land.

3. Expansion of the land base available for agriculture in the Rose Creek area and along the eastern edge of the planning area will provide additional opportunities for grazing and possibly cultivation.

4. Removal of land from the Green Area results in a corresponding decrease in the land base available for sustained yield timber production and reduces opportunities for increased utilization of deciduous and coniferous timber resources. The annual allowable cut of the R1 Forest Management Unit will be slightly reduced by the reduction in the land base available for timber production. There is also a Miscellaneous Timber Unit in the area which will be affected by the decrease in the timber land base.

   No significant deletions from the identified forest land base are required to meet other resource management objectives. To ensure other resource management objectives are achieved, modification of normal timber harvesting operating guidelines may be required.

5. The conversion of land to tame forage production could result in an increased demand for new grazing opportunities in the Green Area.

6. Agricultural development in the Rose Creek area will have significant implications for the newly created Municipal District of Clearwater-Number 99. A particular area of concern is the cost of road construction and maintenance and servicing in the proposed Rose Creek agricultural expansion area.

7. Although the management and administration of mineral resources remains unchanged in areas which are transferred from the Green Area to the White Area, the eventual transfer of lands to private ownership may affect petroleum and natural gas exploration and development by increasing the costs, time and complexity for industry to acquire access approval from the numerous land surface owners.

8. Watershed sensitivity is higher in the eastern part of the planning area and land use activities will have a greater impact on the watershed in this area. An increase in land use activities generally results in an increased need for watershed management. Agricultural development in the Rose Creek area will require careful management of surface runoff in order to minimize possible effects of siltation on Rose Creek and the North Saskatchewan River.

9. Increased sport fishing opportunities in the planning area may result in heavier use of existing recreational facilities and may create a demand for expansion of existing facilities. If new fisheries are established, additional development of recreational facilities may be required to minimize random camping and water access problems. Development of appropriate water access facilities may be required at several locations, if fish stocking efforts are successful.

10. Potential increases in hunting opportunities may result in an increase in use of existing recreational facilities. Extension of the operating season for recreational facilities and a corresponding increase in maintenance and enforcement would be required.

11. Increases in timber harvesting, petroleum and natural gas exploration and development and possibly recreational activity will probably result in increased demand for road development

in the planning area. Increased access development will require an increase in monitoring of watershed conditions and may result in more random use of off-highway vehicles.

12. The proposed agricultural expansion in the Rose Creek area will result in significant loss of habitat for certain wildlife species. The magnitude of wildlife population declines will depend upon the final pattern of agricultural land development (i.e. retention of riparian habitat, interspersion of non-development areas). At the extreme, it is estimated that population reductions of approximately 200 moose, 200 mule deer, 50 elk and 20 black bears could result. Agricultural development will also reduce local populations of certain furbearers which would have a significant effect on the two trappers who currently work registered traplines in the area.

APPENDIX I

Guidelines for Designation of Critical Wildlife Zoning

The intent of Critical Wildlife zoning is to protect ranges or terrestrial and aquatic habitats that are crucial to the maintenance of specific fish and wildlife populations. The zoning recognizes only those habitat areas which are crucial to the life cycle of particular species due to vegetation, climate or topography. Critical Wildlife zoning is applied to protect rare, endangered or threatened species as defined by the Committee on the Status of Endangered Wildlife in Canada and species with high recreational or commercial value on a provincial or regional basis as identified in the report "The Status of the Fish and Wildlife Resource in Alberta".

The following guidelines provide direction for the designation of Critical Wildlife zoning:

1. The priority species in the Eastern Slopes region, which are considered for protection under Critical Wildlife zoning, are:

   a) Ungulates - Elk, sheep, mule deer and caribou. Goats are generally protected under Prime Protection zoning. Critical Wildlife zoning is only used to protect moose and white-tailed deer in areas where wintering concentrations of these species are evident. There are few, if any, heavy concentrations of moose in the Eastern Slopes and habitat for this species is generally not limited in the province. Moose and white-tailed deer are also considered to be less sensitive to disturbance than species such as elk, sheep and goats.

   b) Large Carnivores - Grizzly bear, cougar and lynx. Other species such as wolf and black bear are addressed under Multiple Use zoning wherever possible.

   c) Furbearers - Commercially important species only, as indicated by regional fur sales.

   d) Birds - Colonial nesters and raptors.

   e) Fish - Trout, mountain whitefish and grayling (i.e. salmonids).

2. In most cases, only habitats which support high densities of animals at any phase of the life cycle on a long term basis are designated as Critical Wildlife zones. Examples of such habitats are indicated for the following species:

a) Ungulates - Areas where the range of the species is restricted such as elk and sheep winter habitat, calving and lambing areas and riparian habitats.

b) Large Carnivores - Denning areas.

c) Furbearers - Areas where the habitat of a commercially important species is limited. Riparian habitats frequently meet this criterion.

d) Fish - Critical spawning, overwintering and migration areas. Although riparian areas along important fisheries streams are usually designated under Multiple Use zoning, Critical Wildlife zoning may be applied along streams which are provincially significant for spawning (e.g., Swan Creek).

e) Birds - Colonial nesting areas and raptor nests.

NOTE: For all of the above groups of species, small isolated habitats, such as denning areas, will only be designated as Critical Wildlife zones when they are in combination with other key wildlife areas.

3. In special circumstances, Critical Wildlife zoning may be designated in areas where past, present and future capability of the habitat for wildlife is extremely high. For example, native grassland areas, such as Ya Ha Tinda, Elk Flats and Seven Mile Flats, contain range which has historically been valuable to ungulates and could be used heavily when population levels are higher.

4. Ecological Land Classification (ELC) will be used to delineate the boundaries of key or critical habitats in accordance with the above guidelines.

5. Site specific concerns cannot be addressed at the sub-regional level of integrated resource planning and therefore are addressed through the referral system. Examples of site specific concerns are timing constraints on development activities near mineral licks and special timber harvesting requirements in elk range.

Critical Wildlife zoning in the Rocky-North Saskatchewan Planning Area was designated on the basis of the above guidelines. The zoning configuration also reflects compromise between involved resource management agencies and some Critical Wildlife zones were modified to accommodate other resource uses. Zone boundaries may cross ecological boundaries in areas where available information did not justify designation of an entire ELC unit as a Critical Wildlife zone. Collection of more census data may justify modification of the zone boundaries in the future. Critical Wildlife zones frequently cover riparian areas because these areas provide excellent wildlife habitat with food, cover and water in close proximity. Very little Critical Wildlife zoning was applied to protect salmonid fish populations in the Rocky-North Saskatchewan Planning Area.

Although Critical Wildlife zones are crucial to the protection of specific fish and wildlife populations, maintenance of these resources depends on consideration of fish and wildlife values throughout the planning area. Resource use activities in all zones must take into account fish and wildlife resources.

MAPS NOT

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